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Vol. 62 WELLINGTON, MAY 15, 1941. No. 5

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The New Zealand Journal of Agriculture

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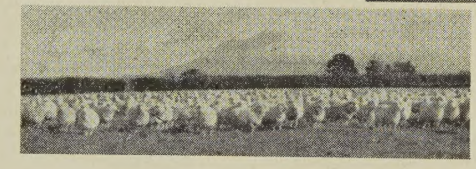
Vol. 62 WELLINGTON, MAY 15, 1941. No. 5

Should Sheep Be Run On The Dairy Farm?

Experience Shows That Cows Return Double The Money On Dairying Land



Above.—A view of the sheep section of the Stratford Demonstration Farm. *Left.*—The 407 ewes on the farm. Note their good appearance.

[*G. A. Blake, photos.*

INTENSIVE fat lamb production on areas suitable for dairying has been a trend in recent years, especially so on land either lightly encumbered or where the fixed charges are low.

In order to obtain more definite information regarding the returns to be expected from this type of farming compared with the returns from dairying, a trial of the two types of farming was established at the Stratford Demonstration Farm in 1936.

— *By G. A. BLAKE,* —

Fields Instructor, Stratford, and Chairman of the Stratford Demonstration Farm Committee.

This farm, situated on the borough boundary, has an elevation of 1,000 feet above sea level, a rainfall of more than 60 inches, is flat to easy undulating, and is typical of the dairy farms in the district. The pastures are mainly ryegrass, cocksfoot, dogstail, and white clover, with a definite trend to Yorkshire fog, sweet vernal, and browntop.

Farm Divided

For the trial the farm was divided into two equal areas of 64 acres having the same carrying capacity, and each area was stocked wholly with the one type of animal. In other words, sheep were put on one-half of the farm and cows on the other half, and no intermingling was allowed for the three years the trial was in progress except that dairy stock were used on the sheep section for pasture control.

Because of the difference in the type of sward between pastures used solely by dairy cows and those where sheep are grazed, it was necessary to make the change-over to ewes gradually. In 1936 some 250 ewes were carried on the sheep section, and the dairy cows were used at times to help control the feed. The sward showed a marked change in density by the end of the year.

In 1937, 300 ewes were grazed on the 64 acres on the daily change system, but this number was insufficient to cope with the growth of grass. Hay and ensilage were therefore made from the surplus grass, while the dairy heifers were also grazed on a portion of the sheep section in order to control the feed. It is interesting to note that the sheep on the farm were unaffected during the facial eczema outbreak of that year, whereas other farms in close proximity were seriously affected. This is perhaps accounted for by the fact that, as there were 11 paddocks on the sheep section and the stock were shifted daily, the feed was always 11 days old.

During the following year the number of ewes was increased to 351, but

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The "Bevin" is used on the Epsom Showgrounds and the Trotting Track there. Now some farmers might have gained the impression that a penetrating harrow such as the "Bevin" might be good only for the drastic treatment of run-out pastures. It is excellent for renovating—we have many, many letters similar to this, written on the 5th April, 1941, by Mr. W. T. Dale, of Te Aroha:—

"They are the best implements on my farm. I am very pleased with the way they open up the soil and let the air in. I have also found them **very beneficial in bringing back a paddock that is partially run out**—sow **a little grass seed** and **a little manure** and **2 cuts with the harrow gives a wonderful response** and **saves a lot of work and expense in ploughing,** etc. To my mind, they are the best harrows on the market."

NOW WE HAVE RECEIVED LITERALLY HUNDREDS OF LETTERS SIMILAR TO THIS, and we would ask you to keep in mind that these users write to us eulogistic letters in preference to exercising their right under our money-back guarantee, and returning the harrow.-

WE HAVE HEARD of some farmers who are of the opinion that they have "superior" pastures which cannot be benefited by efficient harrowing, but which in fact might suffer thereby. Well, to these we say that **the "Bevin" is used to advantage on Domains, Golf Courses, Cricket Grounds and Racing Tracks throughout Australasia.** For instance, a 10ft. "Bevin" is used on **the Randwick Racecourse** and Track, **Sydney,** the condition of which, most farmers will agree, is of much greater importance, and also is of much greater capital value than any pasture in the country. The Australian Jockey Club, which owns Randwick, is reputed to be the wealthiest in the world, and when it purchased the "Bevin," **an American implement which cost four times the price of the "Bevin" was discarded.**

THEN, TO MENTION A FEW OF THE OTHERS. The Eden Park Cricket Ground, the Domain Cricket Ground, the Stone Jug Golf Links, Waikaraka Reserve at Onehunga—which is perhaps the finest sports ground in the Southern Hemisphere—the Manawatu Racing and Trotting Club, and on all the N.Z.R.A.F. Aerodromes throughout New Zealand, etc., etc., etc.

YES, because **it is the only harrow on the market that is readily adjustable to a light, medium or heavy cut to suit every requirement or condition,** we think you will agree that the "Bevin" is good enough to use on any farm or sporting ground in New Zealand. Here is a letter written on the 3rd April, 1941, by Mr. Allan Shaw, of Marshland, Christchurch. **Mr. Shaw** is like hundreds of others **who have bought by mail** under our Satisfaction or Money-back Guarantee, and who as yet **we have not had the pleasure of meeting in person.** He says:—

"For a long time now I have been going to write and tell you how pleased I am with the harrows. They are **just what is wanted for grass paddocks** and are **ideal for levelling off a seed bed. YOUR ADVERTISEMENTS AND PUBLISHED TESTIMONIALS DO NOT BY ANY MEANS EXAGGERATE THE VALUE OF THE HARROWS. I kept them going constantly during our long dry spell** and you could see **a vast difference in my place** compared with the others around me. Wishing you every success in the future."

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again harvesting was necessary to utilise the feed to advantage.

In 1939 the ewes were again increased, this time to 407, and experience this season showed that this was about the maximum carrying capacity, as only one small paddock was harvested. Although heavier lamb losses were experienced in August of this year due to very severe weather conditions, a satisfactory percentage was nevertheless obtained.

Three Years' Results

The results for the three years 1937-1939 in fat lamb production from the 64 acres are shown in the accompanying table.

FAT LAMB PRODUCTION ON THE STRATFORD DEMONSTRATION FARM, 1936-39.

Year.	Ewes.	Lambs docked.	Lambs sold to December 31.	Lambs not fattened.
1937	300	320	108	48
1938	351	381	181	50
1939	407	396	176	23

The considerable tail end of lambs which could not be fattened each season was due to the high summer rainfall, which resulted in the pastures remaining soft after the lambs were weaned. It was noted that lambs which were not quite ready for killing off their mothers in December went back in condition repeatedly when weaned in early January if the weather was wet. However, under these conditions the results can be considered quite satisfactory.

The only supplementary feed necessary was a small amount of hay fed during lambing when the weather was exceptionally cold and rough. The topdressing applied to the sheep section was 2½cwt. of lime and 2½cwt. of super per acre each year.

It was demonstrated on the farm that 400 ewes can be carried in place of 40 cows, the average number carried on the other half of the farm, or that 10 ewes replaced one cow.

The trial was discussed and decided on when butterfat was 8d. to 9d. per lb. and the advisability of having more than one string to the bow on the dairy farm appeared to be worth investigating.

Receipts

With fat lambs averaging £1 per head and butterfat at 8d. per lb., the receipts from the two sections of the farm worked out as follows.

Ten ewes with 100 per cent. lambs averaging £1 per head returned £10, compared with the same return from one cow with a butterfat production of 300lb. at 8d. per lb. On the one side, the wool, which has averaged 5/- per ewe, returned £2/10/- for the 10 ewes, and on the other, pigs returned an average of £2/10/- per cow. Thus, the gross receipts from 10 ewes were equal to the receipts from one cow. A study of the running costs of the shed in the case of the dairy herd showed that they were offset by the replacement cost of the ewes, plus the cost of dipping and shearing. While the replacement cost in ewes is paid in cash, the herd replacement cost is accounted for by loss of carrying capacity in cows due to the keeping of yearlings and heifers on the farm.

When, as at present, butterfat is 1/5 per lb., the cow producing 300lb. of butterfat gives a return of £21/5/-, as against only £10 to £12 for the 10 lambs which can be fattened in her place.

It would appear, therefore, that each 10 ewes which are carried on a clean and productive dairy farm mean either the replacement of one cow or a reduction in production equal to that of one cow. In fact, at present relative prices of butterfat and of lat lambs, COWS CAN RETURN JUST DOUBLE THE MONEY RETURNED BY EWES ON DAIRYING LAND. In other words, dairy farmers who at present run a considerable number of ewes and fatten lambs on dairying land do so at a loss of gross and eventually of net income. There is undoubtedly a saving of labour in the replacement of cows by ewes, and this is the one real advantage.

The trial at Stratford was not concerned with the practice of fattening store lambs on dairy pastures to use up surplus summer growth to advantage, nor was it concerned with the control of weeds by sheep. The only weed dealt with effectively by the sheep on their section was ragwort, which they prevented from flowering, but in any case the few scattered plants on the dairy section are always easily controlled.

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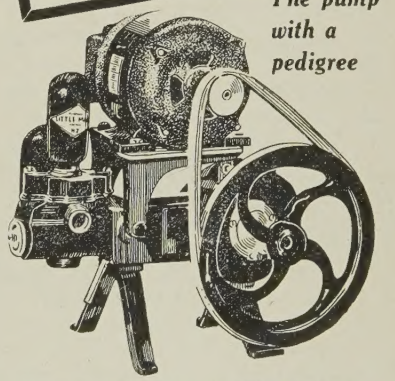

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THE Director-General's PAGE

Changes in Fertiliser Programme

PRESENT difficulties in regard to fertiliser supplies will involve many farmers in a change from the system successfully practised to date, and the alternatives adopted should be governed largely by the kind of farming undertaken and the state of fertility of the land. At the moment there are four possible methods of maintaining production. These fall into the following groups:—

(a) Increased liming.

(b) Use of reverted phosphate and silico-superphosphate.

(c) Topdressing at intervals instead of annually.

(d) Possible reduction of superphosphate with cereal crops.

(a) While in some districts the practice of applying approximately 1 ton per acre of carbonate of lime when the pasture is being established has become a regular feature, in many areas smaller quantities in the region of 5 cwt. applied annually only are used. Where lime is deficient—and this occurs over huge areas in the Dominion—recent investigations have demonstrated the fact that until a certain level is reached by the heavier rate mentioned above, the lighter annual dressing is not fully effective. It has also been shown that it is not essential to have more than half the quantity finely ground, and the farmer can rely on securing payable results from a lime reasonably high in calcium content and with a part only finely ground. One expedient presents itself in areas known to require lime. That is in the increase of rate of application with a reduction in the use of superphosphate. By this means fertility should be maintained at the present level for a period depending on good pasture management and utilisation.

(b) Although the use of reverted phosphate is confined principally to crops, mainly of the turnip and swede family, it has been found successful on grasslands in certain districts. Silico-superphosphate is showing promising results on both crops and pastures, and, on the evidence available to date, the increased use of both these forms of reverted phosphate appears to be a worthwhile venture in the present emergency.

(c) The most marked change in the topdressing programme on high production grassland farms in recent years has been in the time and rate of application of fertilisers. Beginning with an average topdressing of 3 cwt. per acre of a slowly acting phosphate applied in the autumn, or with the use of superphosphate either alone on the non-acid soils or with lime, there has been a progressive change to the more frequent applications of the selected fertiliser in an effort to provide feed for special purposes. Of these, the so-called "winter grass" and the ensilage and hay crops provide the most outstanding examples. For general purposes, also, the more frequent applications at lower rates plus a greater use of lime, particularly where intelligent harrowing and good grazing management are practised, have amply proved the value of the more progressive method. More recently, too, the results obtained from applications of liquid manure have focused attention on the value of this material which, if fully exploited, should go far to replace sulphate of ammonia, which is now difficult to obtain.

In many of the intensive dairying districts where topdressing has been practised for a number of years, resulting in a high standard of fertility, there is no doubt but that this could be economically maintained even if a drastic reduction in fertiliser application was now imposed. This could be brought about by efficient grazing management and pasture utilisation, particularly where every effort is made to avoid poaching and breaking up the sward, and to return to the land all animal residues.

(d) In wheat growing districts in the South Island many farmers sow approximately 1 cwt. per acre of super-

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phosphate with the seed, and in general this has proved payable. In some cases, however, up to 2 cwt. per acre is applied, and both farmers' experience and departmental investigations have shown that, particularly where a rotation is practised, the heavier applications of fertiliser are not warranted. Under present conditions the matter of minimum quantities of superphosphate with the wheat crop is worth further consideration, and during the coming season this fact will be investigated. Wheat growers could also interest themselves by trying sowings with less than 1 cwt. of superphosphate per acre this season. If a saving of only one-fourth can be economically effected with this crop, it will make available for other uses a considerable quantity of this fertiliser.

The alternatives outlined are based on both successful farm practice and the results of experimental work, and consequently are worth consideration by farmers irrespective of the type of land or the utilisation of the area concerned. Very successful changes in practice have been evolved in times of emergency, and it may be true that from our present experience results of far-reaching economical importance in the future use of fertilisers on the farm may be demonstrated.

The Poultry Industry

IN company with farmers of other branches of agriculture, the poultry farmer has recently seen the end of a somewhat difficult season and is faced with a new one which may easily bring further serious problems. Fortunately for the poultry farmer, wartime conditions have not affected poultry husbandry to the extent experienced in other branches of agriculture.

Generally speaking, the New Zealand poultry farmer may count among his assets sound poultry stock with which to farm and an absence of any serious disease problems. On the other hand, he is faced with considerable uncertainty with regard to food supplies and available labour. He is also concerned with a decreased margin between egg returns and the price of his foods. Naturally the question arises—what are the prospects for the new season?

War conditions are directly affecting the labour situation, and while these conditions last poultry farmers will be faced with grave difficulties in this respect; difficulties which only the end of the war can remove. Some help, however, may be expected in other directions. A determined effort is being made to obtain a more even distribution of pollard and bran and to give the poultry farmer a reasonable idea of what supplies of these commodities he is likely to obtain. It is realised that the present uncertainty of the food situation is making poultry management particularly difficult, and for this reason every effort possible is being made now to clarify this situation.

The problem of food prices in relation to egg prices is also receiving attention. A cost survey of egg production is well advanced, and a report on this subject should be to hand towards the end of May. It is hoped that these figures based on actual commercial facts will act as a useful guide to those responsible for fixing egg prices. While every poultry farmer naturally wishes to get a fair return for his product, no poultry farmer with any depth of vision can view without concern unduly high egg prices. A prosperous poultry industry will never be based upon eggs at luxury trade prices.

Thus, even with difficulties ahead, poultry farmers can still proceed without undue pessimism. This may not be the moment for big expansion, but those who maintain the quality of their stock will undoubtedly reap considerable benefit when more normal times arrive.

Parasitologist Appointed

MR. L. WHITTEN has been appointed Parasitologist at the Animal Research Station, Wallaceville, and has now taken up his duties. Mr. Whitten was born and educated in New South Wales, and began the Veterinary Science course at the University of Sydney, where he was awarded the Gurner and Ebsworth Scholarship for Physics, Chemistry, Botany, and Zoology. In 1937 Mr. Whitten was awarded the Commonwealth Department of Health Scholarship, and in 1938 he was awarded the Cooper Prize for Parasitology, and graduated with 2nd Class Honours.

After graduation Mr. Whitten was appointed tutor in Veterinary Parasitology at Wesley College, and joined the staff of the McMaster Laboratory for two years. During this period his work was almost entirely on problems of the internal parasites of domesticated animals, but particularly those of sheep. This work was carried out in collaboration with Mr. H. McL. Gordon, of the McMaster Laboratory, at the Laboratory in Sydney, but considerable time was also spent at the Field Laboratory attached to the New England University College at Armidale.

As junior author two papers were published with Mr. Gordon on the anthelmintic efficiency of phenothiazine. They appeared in the "Journal of the Council for Scientific and Industrial Research" (Australia) in 1939 and 1940.

In three successive years Mr. Whitten was awarded Australian University Blues for swimming. He also played football and rowed in the Wesley College Eights in 1938.

New Fields Superintendent

MR. R. P. CONNELL, Land Utilisasion Officer, Department of Agriculture, has been appointed Fields Superintendent, Christchurch, to replace Mr. R. McGillivray, who has retired. Mr. Connell will take up his new duties almost immediately. Mr. Connell, who has a wide experience of farming, was Instructor in Agriculture at Palmerston North for a number of years, and was appointed Land Utilisasion Officer about four years ago.

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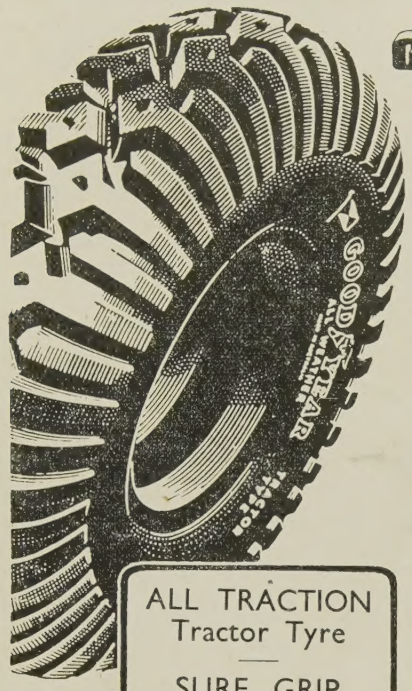

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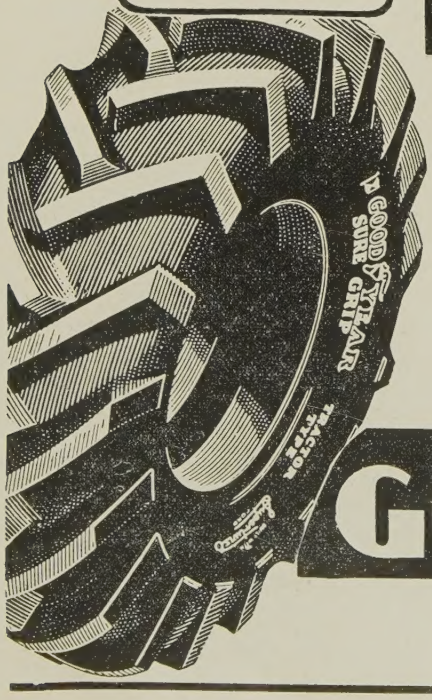

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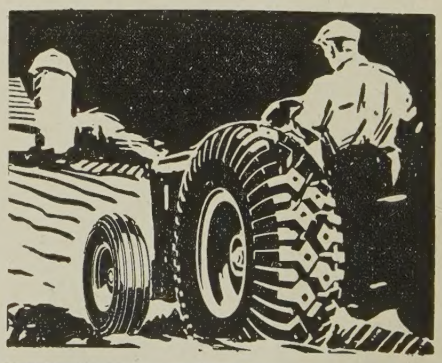

GOODYEAR TRACTOR TYRES

Linen Flax Is A Payable Crop In Marlborough

By
D. R. WILKIE,
Instructor in Agriculture,
Blenheim.

LINEN flax is a new crop to many farmers, and as such it gives rise to two questions—"Is my land suitable?" and, having sown the crop, "What return can I expect to get?" These two questions have not, in the past, been easily answered, because until a year or so ago the determination of suitable land was in its experimental stages only, and therefore we had of necessity to rely on overseas figures for probable yields of straw and seed.

However, the position is now vastly different. This season's experience, has, in the main, borne out experimental evidence as to the suitability of selected land, and the final results of the 1939-40 series of crops, which are now available, give a fairly accurate idea of what returns the crop will yield under Marlborough conditions.

Suitability Of Land

The land suitability question has been well answered by the experiences in the season just passed, when, in spite of some failures and near failures, it can be asserted that the bulk of the land sown in linen flax returned very successful crops—particularly in Marlborough. Crops of sufficient length, with few weeds, little or no disease, and excellent seed prospects are now in stack or in the process of being harvested. There seems little wrong with the suitability of the selected areas.

Those who had direct contact with farmers in linen flax growing will readily agree that the spirit in which this task was undertaken was truly admirable. In fact, with some farmers the question of returns did not appear to enter into the matter, and here the answering of the second question presented no difficulty. The grower understood that an essential war effort was being made, and was willing to do all that he could to help it. While local organisers are very grateful that such a spirit exists, it is realised that the question of returns is of vital importance, and every effort has been made to ensure that linen flax is a worth-while crop from a financial aspect.

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Makers of "Relax" Tents and Camping Equipment.

Firstly, a guarantee of £5 per acre was given, and payments are to be made for straw and fibre at rates which, it is expected, will amply compensate the growers for the service they have given. With the present crops in stack, it will perhaps be some time before the total value of the crop will be apparent to the grower, but some idea of probable returns may be formed from the experience in Marlborough in the 1939-40 season.

Foremost among the districts where linen flax is being grown, Marlborough has now completed its fourth season in the raising of this crop, and in spite of varying seasonal conditions successful crops were grown each year. During the spring of 1937 and 1938 linen flax was sown for the main purpose of multiplying seed of the Liral Crown variety, a small quantity of which was imported from England. In two years' time, ample seed was available for sowing a bigger area, and in 1939-40, 100 acres of crop were sown. This area of linen flax was harvested, weighed, stacked, and dressed, and the straw is now being turned into fibre by Mr. L. C. Chaytor, of Marshlands.

The crops under discussion—namely, those grown in Marlborough in the 1939 season—were sown in a big variety of soil types from medium-light to heavy land, harvested in devious ways (by binder, hand pulling, and machine pulling) and various types of deseeders were also tried out, so that valuable experience was gained.

Crops On Light Land

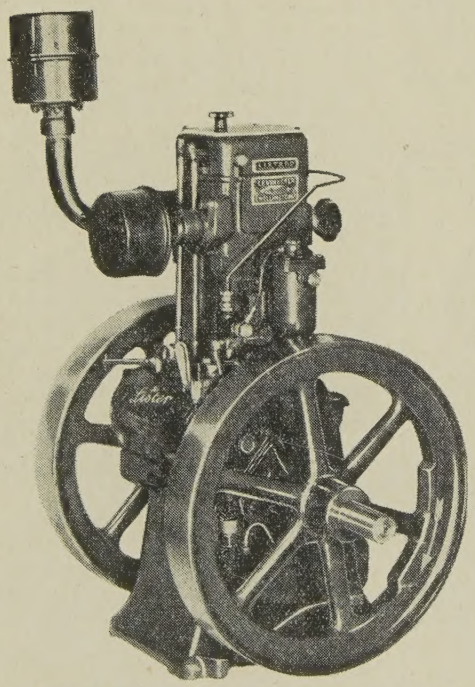
Taking an average crop on the light-medium land, the results from a 10-acre block are interesting. This was drilled at 90lb of seed per acre with 1cwt of super, and in ten weeks' time was ready for harvest. On inspection, it was found that the length of straw, although good, varied somewhat (25 to 34in), as is to be expected where there are shingle bars in the sub-soil. The crop was pulled by hand, as at that time machines were not available, and when dried and weighed gave a total yield of 22 tons 13cwt, a weight of about 2¼ tons of straw, seed, and husks, per acre.

The next operation was deseeding, in which seed and husks are stripped off the plant without damaging the straw. When this was completed, a yield of 7cwt of field-dressed seed per acre was obtained. The line was very clean, having been hand-pulled, and on machine dressing about 6¾cwt of pure seed per acre was obtained. The deseeded straw which resulted weighed 14 tons 2cwt, the loss being dirt, husks, etc. This gave 1 ton 8cwt. 1qr. of deseeded straw per acre.

Taking last season's contract prices for Marlborough as a basis for payment we find:—

	£	s.	d.
6¾cwt. seed at 30s per cwt.	10	2	6
1 ton 8cwt. 1qr. straw, at £4 15s per ton (£4 5s plus 10s bonus)	6	15	0
	£16	17	6
Debits this season amount to £1 per acre (pulling charge), £1 10s (approx.) (seed charge)	2	10	0
	£14	7	6

RELIABILITY . . . IS STILL



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AGENTS THROUGHOUT NEW ZEALAND

Other costs, cultivation, manure, rent, stooking, and stacking have not been overlooked, but these amount to a similar figure with any straw crop, and will not be included.

Therefore, the return exclusive of these costs is in the neighbourhood of £14 per acre, and this from land not heavy enough to grow wheat satisfactorily.

Crops On Heavy Land

Such is the experience of a grower on light land, and figures of a crop on heavy land offer an interesting comparison. The crop under discussion was of excellent length and good quality straw, and was slightly better than the average. Five acres were drilled, and the crop was ready for harvest in a few days over ten weeks. The average length was 36 inches and the crop was even, and here again hand-pulling was done. The total weight of the crop was 14 tons 15cwt, and, after deseeding, the yield of machine-dressed seed was equivalent to 7 1-3cwt per acre, while deseeded straw per acre worked out at 2 tons 1cwt.

Again taking figures of payments for the season just past we have:—

	£	s.	d.
Seed—7 1-3cwt per acre at 30s	11	0	0
Deseeded straw—2 tons 1cwt per acre at £4 15s per ton (£4 5s plus 10s bonus)	9	14	9
	20	14	9
Debits are the same as above	2	10	0
	£18	4	9

These figures give some idea of the possibilities of linen flax with a reasonably good crop and the conditions prevailing at the present time. The writer would like to commend those farmers who persevered with hand-pulling rather than "put the binder into it," thus making the compilation of these figures possible.

Binder Cutting

Some idea of the loss caused by binder cutting can also be given from the experiences during the season under discussion. Two crops of equal area which, on inspection, appeared to be on a par as regards length, quality, and thickness and freedom from weeds were taken. One was pulled and the other cut with a binder, during which operation the ground was "shaved" as closely as possible. When the crops were carted and weighed it was found that:—

Four acres of pulled crop gave a yield of 11 tons 17cwt.

Four acres of binder-cut crop gave a yield of 8 tons 11cwt 2qrs.

The difference is considerable, and although it is not claimed that it is all due to binder cutting—some is doubtless due to variations in estimate of crop yield—it is apparent that a large proportion of the loss can be traced to the straw being cut with a binder.

All the work carried out in Marlborough was done on a field basis and not as a carefully-planned experiment, and therefore some of the weights may be only approximate, but for practical purposes the figures compiled give an indication of what the crop will return under our conditions. It seems that the second question, "What return can I get?" can be answered—A good one!

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MOOSE

LINSEED OIL CAKE NUTS AND MEAL

TREES FOR SHADE SHELTER And TIMBER

Above.—These *Pinus radiata* now flourish where gorse once dominated. Note the shelter belts in the distance.

Above.—A fine plantation of *Eucalyptus saligna* and *E. Botryoides* planted 10 years ago.

Right.—An interesting plantation of *Eucalypts*, which is more or less an experiment.

By

A. M. LEE,
Fields Instructor, Kaitaia.

THE tree-planting season is here again, and it is to be hoped that not a few will be improving their holdings by the judicious planting of suitable species. It must be borne in mind that species which will thrive in some latitudes may be quite unsuitable elsewhere. For instance, *Eucalyptus viminalis* and *E. Macarthuri* grow to large dimensions with phenomenal rapidity on the pumice soils of the Waikato basin. These species demand a free, deep subsoil, abundant moisture, and cool winter temperatures, but are not adapted for growth on the frostless country of the north, or exposure to saline winds.

It is generally appreciated that trees vastly improve the beauty of the landscape, but more than that, they return the initial outlay many times over to the grower by providing shade and shelter for stock and pastures, and by providing useful timbers. Frequently, one finds that many localities are conspicuous by the scarcity of well planted and cared for trees, and this is especially noticeable after having travelled through districts where the practical value of trees has been recognised by the exploitation of many splendid species. Admittedly, there are difficulties and setbacks to be encountered in the propagation of trees for farm purposes, and very often the problems have to be solved by trial and error methods.

We owe much, however, to the work and writings of such men as J. H. Simmonds and H. A. Goudie, and to the guidance of our own State Forest Service, as well as to a great number of private individuals in scattered districts throughout the country, who have made a feature of farm forestry. To these, then, we may look with confidence for advice and suggestions for our tree-planting schemes.

The series of accompanying illustrations will show what has been accomplished by Mr. A. J. Matthews, of Kaitaia, a tree-loving enthusiast in the far north. His farm is situated on the Kaitaia flats, which are particularly susceptible to cold southerly winds, which affect drastically the well-being of stock and pastures, not to mention human beings.

On a portion of the holding overlooking the good dairying flats (Fig. 1) gorse has been chopped and *Pinus radiata* set out 6 ft. each way. The trees were planted in August, 1936, and have made splendid growth on this piece of land, which was infested with gorse and was considered too poor for development. Looking over the farm, a good impression is gained of the well-set-out shelter belts and little groups of *Eucalypts* and *Macrocarpas*. Even patches of manuka which have been left from the original native cover serve a useful purpose in providing shade and shelter.

On the flat at the base of this hill there is a very fine plantation of *Eucalyptus saligna* and *E. Botroides* (Fig. 2) planted 10 years ago. Immediately behind the *Eucalypts* are some *Pinus radiata* 12 years old. Both *E. Saligna* and *Botroides* are very suitable for conditions in the north,

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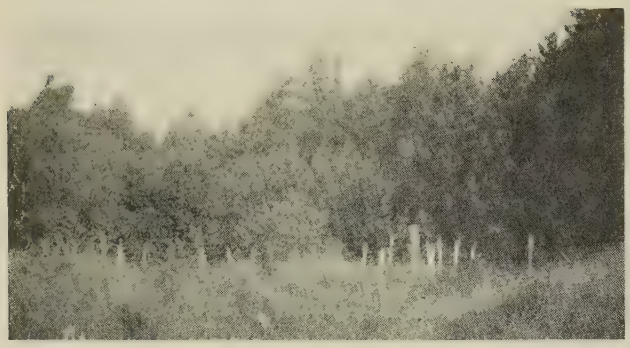
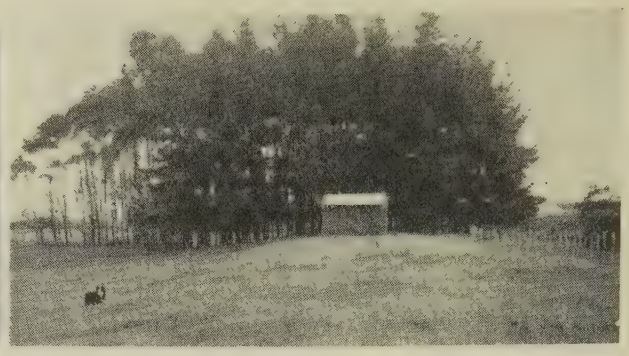


A composite group of *Cupressus Benthami, Crytomeria japonica, Pinus radiata* and *Eucalypts.*



A group of *Pinus radiata,* some of which are now ready for the saw bench.

and the former is particularly resistant to insect attack. In mature trees the two species may be distinguished by the peeling of the bark in the former from the base to branches and by the greenish-white boles, while in the latter the presence of rough, thick bark which clothes the boles from base to branches is quite distinctive and characteristic of the species. The timber from these trees is first-class for posts and poles or for firewood.

An interesting plantation of *Eucalypts* is illustrated in Fig. 3, and this is more or less an experiment on the part of the grower. They are six-year-old *E. tereticornis* set out in the form of a small plantation. The timber of this species is very similar to that of one of the best of the Australian hardwoods. *E. rostrata. E. tereticornis* is worth a trial on well-drained flats in good lowland country in the Auckland Province.

In the composite group (Fig. 4) *Cupressus Benthami* are set out in the long paspalum in the foreground, which is a fairly wet situation. The low trees in the middle foreground are *Crytomeria japonica,* to the left and right are *Pinus radiata,* while *Eucalypts* occupy the background. Fig. 5 shows a group of *P. radiata,* some of which are now ready for the saw bench.

Space will not permit illustrations of other belts of *Eucalypts* and *Macrocarpa* which beautify this farm, but the whole does give the impression of being a well-thought-out scheme for the provision of shade, shelter, and timber. Moreover, thought has been given not only to the requirements of the farmer in his own lifetime, but also to the needs of posterity.

Mr. Matthews has raised most of his trees from seed—a practice not beyond the ability of most farmers. In this, however, as in the purchase of grass and clover seeds, care should be taken that the tree seeds are of good quality and germination, and that they come from a reliable source.

The quality of seedlings should be judged rather by their root development than by their top growth. If they have been well wrenched in the nursery the seedlings should have good fibrous roots covered with root hairs and not too much top growth. Generally speaking, small sturdy seedlings prosper better than larger planting stock which has had its growth forced.

For those interested in the subject of tree culture the following authorities are quoted:—Simmonds, J. H., articles in the "N.Z. Journal of Agriculture," and Eucalypts (Brett Publishing Co.); Goudie, H. A., article "N.Z. Journal of Agriculture," June, 1921; Tree-planter's Guide, N.Z. State Forest Service; Trees and Shrubs Hardy in the British Isles—Bean, W. J.

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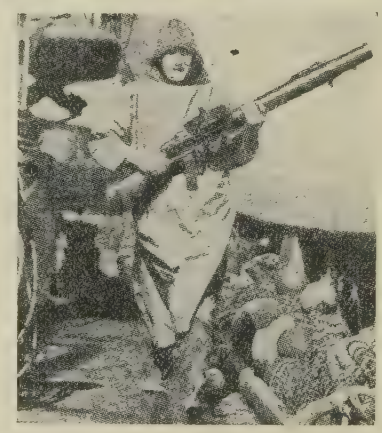

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Pig Feeding Trial With "Mother Liquor" From Whey

The "mother liquor" group—average liveweight, 208.4 lb. Note their healthy clean skins. The "mother liquor" group on the hooks—average carcass weight, 151.2 lb. All No. 1 prime grade.

Indications of the value of "mother liquor" (the by-product after the extraction of lactose from whey) in the production of bacon have been given by a trial in Southland. The trial suggests that mother liquor should provide an excellent means with a basic meal ration for winter feeding for farmers within a reasonable distance of the producing factory.

By C. V. DAYUS,
District Superintendent, Livestock Division, Dunedin.

THE Livestock Division of the Department of Agriculture and the Otago and Southland District Pig Council have been interested in a pig-feeding trial recently carried out in the Wyndham district to observe the value of "mother liquor" in economic feeding for bacon production. "Mother liquor" is the by-product after the extraction of lactose (sugar of milk) from whey. After the whey has been subjected to an evaporation process in vacuum the sugar crystallises and is removed, and the residue is called "mother liquor." This liquor may be further concentrated by evaporation to produce the more familiar product —whey paste.

Mother liquor is slightly variable in composition, but generally contains 35 to 40 per cent. solids. These consist of 15 to 20 per cent. protein (lactalbumen. which is rich in an amino-acid called lysine, which is favourable for growth and milk production), 15 to 20 per cent. lactose, and 5 per cent. milk salts (mineral matter).

The pigs used in the trial were from a litter born on June 6, 1940, the first cross between a Large White boar and a Large Black sow. At weaning time, July 30, the pigs were divided into two groups of six, four barrows and two sows in each group, the one group receiving a small basic ration of meal plus mother liquor, and the other group being fed according to the usual practice of the owner.

Food Consumed

The food consumed by each group throughout the four months' trial is shown below:—

—	Mother Liquor Group.	Standard Practice Group (controls).
Meat-meal ..	93 lb.	93 lb.
Crushed oats ..	14 bus.	32 bus.
Crushed barley	8 4/5 bus.	20½ bus.
Mother liquor ..	205 gal.	—
Molasses ..	—	7⅝ gal
Whey	—	ad lib. since 9/9/40

The mother liquor group began with 7 lb. of grain and 12 pints of mother liquor per day, and this continued for the first six weeks, when the grain was increased to 8½ lb., and a fortnight later the mother liquor was increased to 14 pints. This portion of the ration remained unchanged to the end of the trial.

The mother liquor was broken down to 1 in 5 with water. It is not so

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Whole Herd Policy of four inoculations:—
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appetising in stronger concentrations, and scouring may be induced if it is fed alone or if too much is fed at one time. In the quantities indicated in this trial scouring did not occur. After September 9, when the local dairy factory opened, the mother liquor was broken down with whey. The meal was divided equally into three feeds per day, mother liquor being fed twice per day (night and morning) with 2 gallons of water allowed with the midday meal.

The standard practice group began with 14 lb. of grain and one pint of molasses per day. This continued for six weeks, when the grain was increased to 17 lb. A fortnight later the grain was increased to 20 lb., and at the same time molasses was discontinued, as whey was allowed to appetite from September 9. Three weeks later the grain was increased to 23 lb. per day and continued to the end of the trial.

	Mother Liquor Group.	Standard Practice Group (Control).
Number of pigs, born 6/6/40	6*	6
Days feeding	124	124
Average initial live weight 30/7/40	32.8 lb.	34.5 lb.
Average final live weight 2/12/40	208.4 lb.	203.5 lb.
Average live weight gain per pig per day	1.41lb.	1.36 lb
Average carcass weight 6/12/40	151.2 lb	150 lb.
Average carcass weight as per cent. of farm live weight	72.5	73.7
Grading	All No. 1 Prime	No. 1 prime 4 No. 2 prime 2
Average price realised, Burnside market	£5	£4/17/2
Average meal consumed (lb.)	203.9	400
Average meal consumed per 1 lb. liive weight gain	1.16	2.36
Average cost of meal per pig	18/1½	£1/15/6
Average surplus per piig over cost of meal	£4/1/10½	£3/1/8

* On September 19 one pig was lost through attempted reduction of a prolapsed rectum. This fact has been taken intoconsideration in compiling the average figures.

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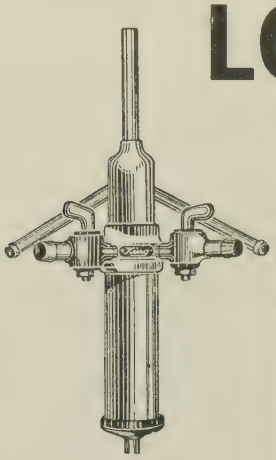
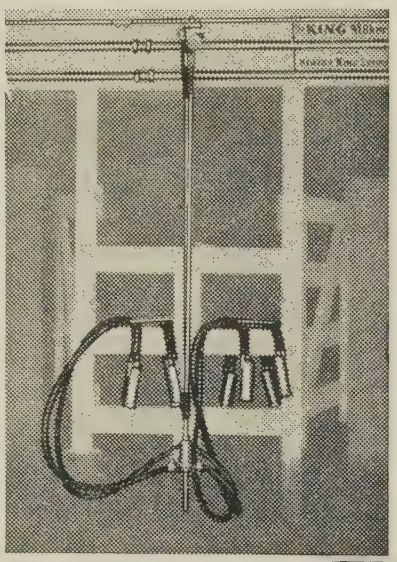
now available at LOW COST!





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The meal was divided into three feeds per day, two gallons of water being allowed with the midday and evening meal. In the early stages molasses was given with the morning meal only, and was broken down with 3 gallons of water. When whey became available, molasses and water were discontinued.

In addition to the above, both groups received ¾ lb. of meat-meal per day throughout, and for the first two months a few swedes were allowed daily in equal quantities to both groups. The control group relished the swedes rather better than the mother liquor group.

Results of Trial

The results of the trial are summarised in the accompanying table.

The average cost of mother liquor at current rate was 2s 6d per pig. The controls received molasses at an average cost of 2s 4½d per pig.

Progress of Groups

Both groups did exceedingly well to be marketed at more than 200 lb. liveweight in exactly six months from birth. As one would naturally expect, it was indicated that the greatest influence derived from the use of mother liquor is in the early stages of growth and development, and at the start of the trial the young pigs on mother liquor soon obtained an advantage which they held throughout the trial. At the start, the mother liquor group were 10 lb. lighter than the control group; at the end of the first 30 days they had not only picked up this 10 lb., but had also increased their weight over the controls by 6 lb. During this period they put on a small fraction over 1 lb. per pig per day. This average daily gain steadily increased, so that in the last 30-day period the average daily increase per pig was 1.65 lb.

There was no special feature in the sties in which the pigs were housed, but there was in the amount of straw litter provided for bedding. The warmth thus provided prevented any slowing down in the proper rate of weight gain, and consequent increase in the period of fattening.

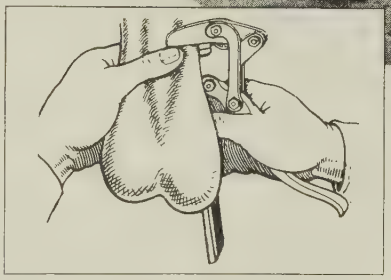
Both groups were a shade too fat, particularly the controls, and they might have been marketed with advantage at least 10 days earlier. They were very well grown and finished, and topped the market the day they were sold. The control group had a tendency to put on fat, of which the grading gives some indication. This once again draws attention to the advantages of restricted feeding in the later stages of fattening.

Value of Mother Liquor

Some evidence of the value of mother liquor in the production of bacon has been indicated, and, with a small basic ration of meal, rapid and economic growth is promoted. Mother liquor is a seasonal product, produced at the peak of the season in quantities approximating 3000 gallons daily. It can hardly take the place of cheap whey obtained from a dairy factory during the milking season, but it is, of course, easier to handle than whey, and, unlike whey, it will keep and is readily broken down for immediate use. For these reasons, mother liquor should provide an excellent means with a basic meal ration for winter feeding for farmers within a reasonable radius of the producing factory.

Thanks are due to Mr. Andrew Thomson, Oware, near Wyndham, for permitting his pigs to be used for the trial, to Mr. G. T. McNally, Inspector of Stock, Wyndham, for his observation and assistance with the weighings, and to Mr. N. Macdonald, Supervisor, Otago and Southland District Pig Council, for his interest and tattooing the pigs for carcass quality appraisement. We are indebted to Dairy Products, Ltd., Edendale, for the supply, free of charge, of the mother liquor used. This company has signified its intention of supplying mother liquor during the war period at a cost of 2s 6d per 40 gallons ex factory.

LAMB MARKING!



You Can't Reasonably Continue Using the Knife to Your Disadvantage!

Striking results are quoted in the Scottish Journal of Agriculture of an experiment with the two methods of castrating lambs—the knife and the bloodless castrator.

Ten pairs of twin half-bred male lambs were taken from a flock of Cheviot ewes. One twin was castrated with the castrator, the other with the knife. The live weight gain between castration and weaning was recorded for each lamb, and the gain made by one lamb castrated with the castrator compared with that of its brother castrated with the knife.

IN EVERY CASE, THE BLOODLESSLY CASTRATED LAMB MADE MORE RAPID GAINS, THE AVERAGE INCREASE BEING 59 lb., AS AGAINST AN AVERAGE OF 53 lb. FOR THOSE CUT WITH THE KNIFE, AN ADVANTAGE OF 6 lb. PER HEAD.

Seven single lambs castrated with the castrator averaged 64 lb. increase between castration and weaning, compared with an average of 58 lb. for seven cut with the knife, again an advantage of 6lb. per head. In addition to yielding a heavier lamb, the bloodless castrator gave a bigger lamb with bolder head and stronger bone, and in better condition.

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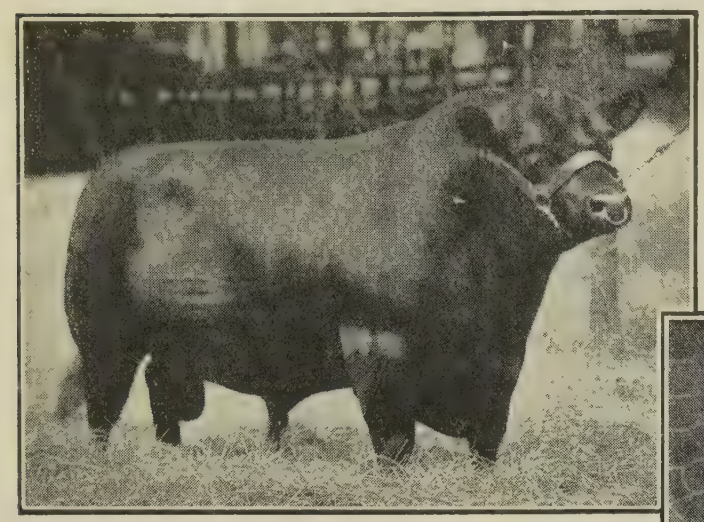

Above: BARMAR QUALITY (Imp.), the late herd sire of BEACHLEA DOWNS STUD. Before he left America he was Junior International Champion at Chicago.

Right: BEACHLEA D57, the chief sire of the Flock. He is a son of SANDRINGHAM 117/34 (Imp.), bred by H.M. the King. He won two gold medals as a shearling, and has won many championships.

BEACHLEA SOUTHDOWN SHEEP have won more than 50 Championships and Reserve Championships, AND HAVE NEVER BEEN BEATEN IN AN OPEN GROUP AT ANY SHOW. This stud has bred the winners of 7 gold medals awarded by the Southdown Society for 1-shear rams over the past three years.

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Pasture Establishment On The Pumice Soils

By C. S. DALGLIESH,
Fields Instructor, Rotorua.

VOLCANIC ash showers, differing in ejected material and widely distributed both by air and water, form the pumice soils of the Central Plateau of the North Island. These soils have undergone the least possible alteration from the parent rock from which they originated, the only major change being the addition of vegetative matter. Due to their vesicular nature and the ease with which they break down, pumice soils support luxuriant plant growth without the usual period of weathering necessary to reduce average rock material to the soil condition.

The ability of pumice to support a wealth of plant growth without undergoing a long period of weathering is well illustrated on the Rotorua-Taupo main highway and other roads in the district where reconditioning has been undertaken during the past few years. In the re-formation of these roads, grasses and clovers were sown on newly-formed filling to assist in combating erosion, a dressing of superphosphate being applied at time of seeding to assist in a more rapid development. Although the soil is merely pumice from nearby pits, the resultant growth has been excellent and beyond expectations.

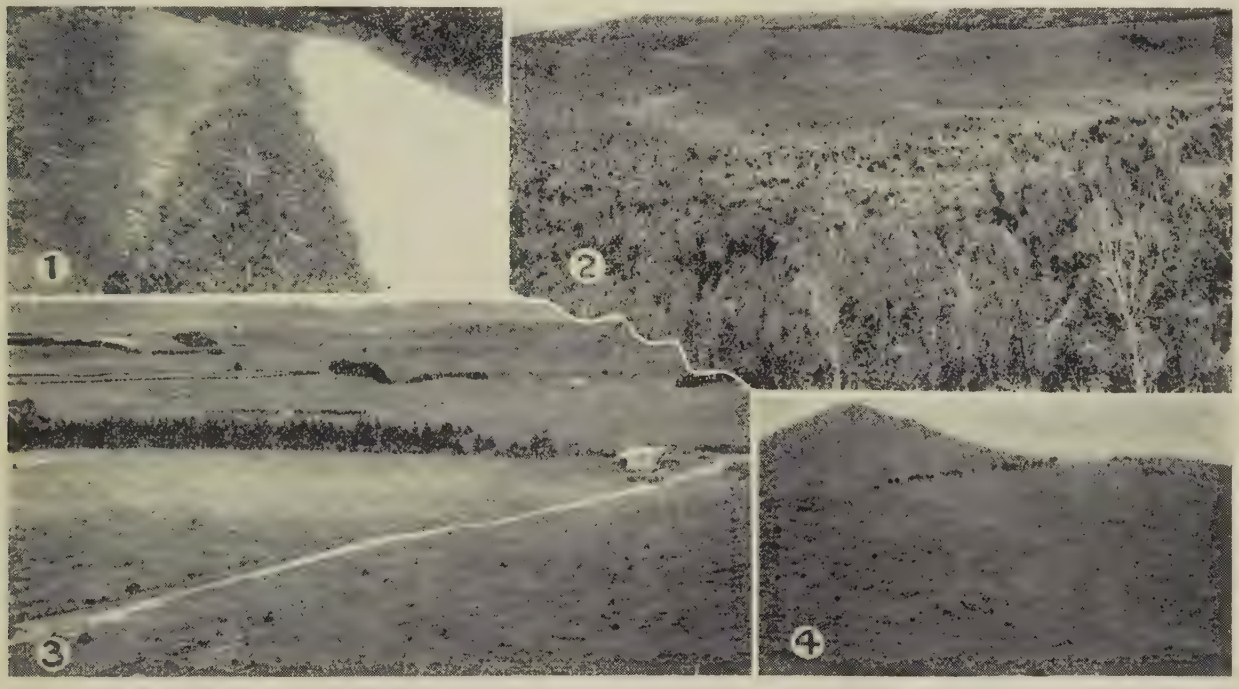

Fig. 1.—Vigorous white clover on pumice roadside. *Fig. 2.*—A typical view of open pumice country. *Fig. 3.*—A view of recently developed country in the pumice area. *Fig. 4.*—A good surface-sown hill-country pasture. Fern controlled by proper stock management.

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Fig. 5.—A nine-year-old permanent pasture on first ploughing of scrub land, put down under proper ploughing and cultivation methods. *Fig. 6.*—A six-year-old permanent pasture on original tussock-manoao scrub-covered flat. Light pumice country. First sown to temporary pasture, followed by a swede crop, thence to permanent pasture.

The development of these roadside pastures throws an interesting light on a commonly accepted idea that the humus supply of pumice soils must first be built up before grassing. These pastures are growing on pure pumice —utilised for roadmaking—and in accordance with the experience of pasture establishment throughout the pumice area, clearly demonstrate that the clover plants (particularly the white clover plants) are essential in building up soil fertility, for until clovers are established grasses make poor progress (see Fig 1).

Pumice soils vary in quality and texture in just the same way as the more fertile soils of the Dominion. In texture the pumice soils range from rubbly down to coarse sands and fine silts, and the finer soils are the more fertile. However they differ in texture, they possess the same common features—for example, they are easy to cultivate in any weather, and do not cake or puddle. Probably there are no more easily worked soils in the Dominion. Pumice soils allow heavy rains to drain away rapidly, and when they are well consolidated the excellent capillary action permits the soil waters to ascend from below.

Natural Vegetation Growth

Unlike forest lands, which are chiefly of the rimu-tawa association and totara, the natural vegetation of the open pumice country may be either lichens, mat plants, fern, tutu, tussock, or scrub. The higher areas are for the most part covered with fern and tutu, and the lower lands—undulating to steep faces —carry mainly light manuka scrub with areas of heavier manuka. Tussock and manoao scrub cover the flats. The manoao scrub ranges from scattered patches of light growth to areas of heavier and dense growth.

Method of Development

Farm development has progressed more rapidly on fern and tutu country than on scrub land, the initial pasture establishment being more easily obtained because of the higher fertility of the soil. The method of developing varies with the type of country.

On the higher levels covered with fern and tutu the most practical method is to cut the tutu close to the ground level and then burn, surface-cultivate with disc and harrows, and sow to a temporary pasture. Sowing is usually done in the autumn, and young fern crushed by stock in the spring. In two to three years the land is ploughed—the tutu roots are by this time well rotted—and sown in

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swedes, invariably with very excellent results. After the swedes are eaten off the land is either disced or ploughed and sown to a permanent pasture. This method was largely and successfully adopted by the pioneer farmers.

At the present time, where fern and tutu country is adjacent to pasture land, surface sowing following burning is successfully practised. Having available pasture feed close at hand, stock can be put on in large numbers to crush the fern and consolidate the surface, and at the same time continuous close grazing can be avoided. On the undulating and level lands, which come under the heading of ploughable lands, cultivation must be preceded by cutting and burning of the scrub. Clearing costs can be reduced considerably if the scrub is burnt two years ahead of cultivation.

There are two methods advocated in the cultivation of these lands—(1) Surface discing and cultivation for the seed bed, (2) ploughing plus cultivation. The discing advocates maintain that the surface working retains the natural soil consolidation, but experience has proved that a good standard method of preparatory cultivation for pasture establishment is to plough with a lea mouldboard plough 5 to 6 inches deep and fallow for four or five months to allow complete weathering and aeration. The land is then rolled in the direction of the ploughing. This rolling on the furrow is important in bringing about good consolidation. After rolling, the land is double disced, which should also follow the direction of the ploughing. Chain harrows are used to fine the seed bed and level the surface. The land is again rolled before the seed and fertilisers are sown, and if time allows, again rolled after the seed has been covered with the chain harrows. Ploughing is advisable in the preparation of the seed bed, and ploughing by bringing to the surface the unweathered pumice from below and mixing it with the surface soil gives a much better soil for pasture production than surface cultivation.

The tendency appears to be much adverse to bringing up the underlying pumice to the surface by ploughing. This point is worthy of careful consideration. In the ploughing of virgin pumice lands, a ploughed field often presents a mottled appearance due to irregular scattered patches of white pumice blended with the main dark humus colour of the ploughed land. The natural trend is to consider that these white areas of pure pumice soil are sour and not productive of plant life. Pumice is highly absorbent, and, lying under the surface for many years, absorbs soil water which contains plant food collected from the decayed vegetation of the surface and the dissolving of the soil particles. Pumice which is brought to the surface rapidly disintegrates, and by oxidation changes to a darker coloured soil in a remarkably short time. This factor is often remarked on by farmers in the cultivation of these pumiceous soils, and it is for this reason that pioneer farmers of long experience advocate ploughing to a depth of seven inches as against the usual five inches.

Methods for Sowing

On pumice soils the farmer is fortunate in that, following the clearing of scrub on virgin lands, he has different methods at his command in preparing the land for permanent pastures, because of the soil being so easily worked. All are simple and entail no heavy, tedious labour, and pasture establishment is reasonably quick.

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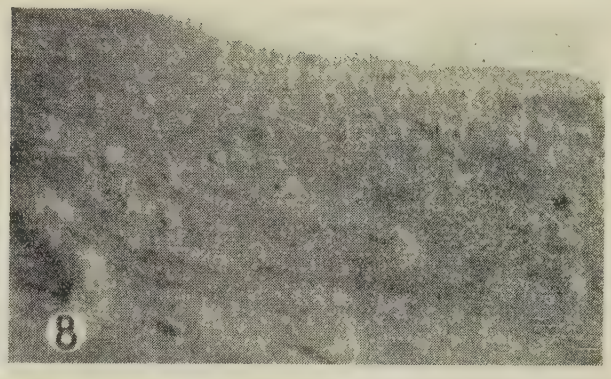

Fig. 7.—A three-year-old temporary pasture drilled in with a swede crop. Seeding: Red clover, 6 lb.; cocksfoot, 2 lb.; white clover, 1 lb.; perennial ryegrass, 2 lb.; timothy, 2 lb. *Fig. 8.*—A nine-year-old permanent pasture on similar country to that in Fig. 4. Tussock invasion due to want of care in ploughing and lack of consolidation in early pasture establishment.

The methods can be classed as direct and preparatory. The direct methods are: Ploughing plus cultivation, or surface cultivation or surface sowing of unploughable lands, provided the facilities of other pastures and stock are available to allow adequate stock management to crush the fern.

Preparatory methods are: Ploughing and sowing to a temporary pasture and then to permanent pasture. The temporary pasture is utilised for hay and ensilage as well as grazing, and in two or three years the land is ploughed and sown to permanent pasture, which makes excellent and rapid development when preceded by a temporary pasture.

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A swede crop may precede the permanent pasture. Following swede crops, the land may be either ploughed or surface cultivated. Surface cultivation of swede-crop land is quite satisfactory, as the land is well consolidated. Root crops on average virgin pumice soils are not an economical productive crop, so that sometimes swedes are sown with a seeding of 5lb to 6lb of red clover, and a light seeding of cocksfoot and Italian ryegrass may be included. After the swedes are fed off, heavy pasture growth, especially of red clover, results, and the subsequent treatment is similar to that for temporary pasture. (See Figs. 5, 6, and 7.)

The most practical and economical method of dealing with steep hillside faces is to leave them until the ploughable lands have been established in permanent pastures. The surface sowing and stock management will bring about excellent results.

Grass Seed Mixtures

The improved strains of certified grasses and clovers which are now available have played a very important part in the success of pasture establishment on pumice soils. They have produced pastures beyond expectations. Demonstration trials of certified strains of grasses and clovers conducted in localities of different soil types have clearly proved the superiority of certified strains, and have demonstrated that none other should be sown on pumice lands.

The outstanding feature resulting from the use of certified strains of grasses and clovers is the ability of the proved certified white clover to raise the fertility of pumice soils and to impart health and vigour to the grasses, especially ryegrass. Certified proved strains of white clover have greater ability in this respect than liberal applications of fertilisers. Perennial ryegrass will not thrive on pumice soils without the support of proved vigorous white clover, and inferior strains fail to give this support.

Permanent Pasture Mixtures.

Perennial ryegrass, 25lb.; cocksfoot, 10lb.; red clover, 2lb.; white clover, 2lb.; total 39lb. per acre.

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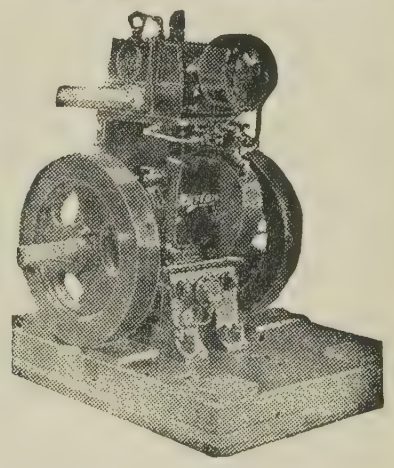

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Temporary Pasture.

Italian ryegrass, 25lb.; cocksfoot, 6lb.; red clover, 5lb.; white clover, 2lb.; total, 38lb. per acre.

These mixtures give general satisfaction on pumice soils. The permanent pasture under good farming practice management will provide a close sward—ryegrass dominant and white clover sub-dominant, with a very good development of cocksfoot (small). If management control is lax, strong-growing cocksfoot will be dominant with white clover and ryegrass sub-dominant. Timothy, crested dogstail, paspalum, subterranean clover, and *Lotus major* are frequently included in the permanent pasture mixtures, but it would seem that their inclusion depends largely on the subsequent utilisation of the pasture.

Under manurial treatment and pasture management with the object of securing a high-producing pasture, the competition of ryegrass, white clover, and cocksfoot is too great for satisfactory production of these grasses and clovers, although this does not imply that these grasses will not thrive on pumice soils. Timothy and crested dogstail, for instance, are very noticeable in many pastures throughout the Central Plateau area, and the inclusion of these grasses and less ryegrass in a mixture on areas which are not likely to be heavily stocked and where less manurial treatment and stock management is given in first year or two of establishment is worth considering. Such pastures are very suitable for the grazing of young stock, and, being a class of pasture requiring less intensive management than ryegrass—dominant—they can therefore be used in providing good feed for late autumn and early winter. Subterranean clover does quite satisfactorily, but it is of less value in districts of liberal rainfall where white clover does so well.

Time of Seeding

Where soil fertility has been improved by farming practice, spring and autumn sowing do equally well. When sowing on the first ploughing of virgin land, spring-sown pastures make better progress than autumn sowings, which have the winter weather conditions to contend with. Autumn sowings on virgin lands should not be made later than the middle of March.

Manurial Treatment

Pumice soils are deficient in phosphoric acid and respond markedly to phosphate manuring, and in pasture establishment it is essential that adequate available phosphates be supplied. Superphosphate at the rate of 3cwt. to 4cwt. per acre has proved the most economical for this purpose. Nitrogen is deficient in these pumice soils, but nitrogen deficiency is overcome by the luxuriant clover growth obtained through phosphatic manuring.

It is usual to apply 3cwt. of superphosphate with the grass seed, and frequently a second application is given four or five months after sowing, followed by 3cwt. each year, making a practice of the annual topdressing being done in the autumn. Frequent applications in the early stages of establishment appear to be definitely warranted, and the general practice is now to sow with 3cwt. of superphosphate and give further applications of 3cwt. per acre twice a year for the first two years This method produces a dense and highly productive ryegrass-white clover pasture. This liberal application of fertilisers may appear excessive to those farming under different circumstances, but it has proved its value in developing pumice soils.

A topdressing of 3cwt. of ammoniated superphosphate per acre in the first autumn of the establishment of young pastures will strengthen the ryegrass. Ammoniated superphosphate should never be applied other than from the autumn to early spring. In regard to manurial mixtures, it is not economical to use other than superphosphate for the first few years in the establishment and development of pastures on pumice soils, except the one application of ammoniated superphosphate as an autumn topdressing to young pastures. As

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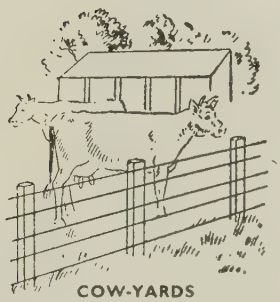

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Fig. 9.—A prospective short cut to permanent pasture establishment. Seed bed on surface cultivation of tussock land; decidedly not recommended; leads to rapid re-establishment of tussock and fern as in Fig 10. *Fig. 10.*—Young pasture establishment following surface cultivation. Regrowth of tussock in foreground; re-establishment of fern and scrub in background. *Fig. 11.*—A good productive pasture of ryegrass-white clover-cocksfoot on a pioneer farm.

nitrogen is added by the aid of white clover and an increase of humus is provided by good farming and stock management, other manurial treatments and lime can then be used.

The necessity of applying lime to the land is always under consideration by the farmer. Virgin pumice soils are deficient in phosphoric acid and nitrogen, and it is not advisable to use lime until the phosphate and nitrogen content has been built up by applications of phosphates and the addition of humus by general farming practices.

Management

The sowing of a specific grass seed mixture and adequate manurial treatment are not all that is necessary to secure a good class pasture which is ryegrass dominant and white clover-cocksfoot sub-dominant. Control of growth and stock management is one of the main keys to securing the desired pasture sward. A specific grass seed mixture sown on typical soil types and given similar cultivation and manurial treatment will produce ryegrass-dominant pastures or cocksfoot-dominant pastures according to subsequent management. Ryegrass thrives under reasonable grazing conditions, and will then become the dominant species of the pasture, but if pasture growth control is lax, cocksfoot will be the dominant species.

The ability of red clover to grow luxuriantly on the pumice soils induced pioneer farmers to make free use of this clover in permanent and temporary pasture sowings. Sowings ranging from 5lb. to 12lb. per acre were made, and these resulted in heavy clover growth. Stock do not relish an over-abundance of red clover feed alone, and it is not uncommon to find all classes of stock failing to thrive in the midst of plentiful supplies of red clover. If it is mown and allowed to wilt, the stock will eat it readily, and will consequently do better.

This feature, combined with the smothering out of ryegrass by the heavy clover growth, retarded farming progress and the development of good ryegrass pastures. In addition to adding fertility, a certain amount of red clover enables heavy stocking to be undertaken on young pastures, which is an essential contributing factor in the further building up of fertility by animal droppings and nitrogen and increased surface consolidation—all most important. A sowing

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of 2lb. per acre has proved sufficient to include in permanent pasture mixtures, but even this may give excessive growth, making it necessary for active control by stocking assisted by mowing when required, otherwise irreparable damage results in the smothering of ryegrass development.

Young pastures sown on the first ploughing of virgin pumice country have a low autumn, winter, and early spring production, but make rapid late spring and summer development, thus coming to a high carrying capacity in a short period. For instance, 90 acres of permanent pasture sown in the spring of 1930—a very dry period with continuous strong winds throughout the spring and summer of 1931-32—carried 56 milking cows and 50 head of dry stock, with 30 additional young stock in November. Even with this stocking feed was too plentiful, and 20 acres of heavy clover growth was topped in October and 30 acres mown and made into ensilage in late December. This remarkable growth was not merely a first year flush, as in the following years this pasture production was surpassed.

Fig. 12.—For many years the pumice soils of Rotorua district gave much trouble because of mineral deficiency. Following intensive scientific investigations, terminating in the use of limonite and cobalt, this has been overcome. Area of farm, 150 acres; stock-carrying capacity, 350 breeding ewes, 30 dairy cows, and 10 head of young dairy stock.

Active control of young pasture growth by stocking and mowing is essential for an even, vigorous development of grasses and clovers. Lack of attention to this factor means only partial success, or it may mean failure. During the late spring and summer young pastures require grazing control every 15 to 21 days; generally by three weeks' time there is a strong clover growth.

Prospective Short Cuts

On all farms the natural desire is to accomplish the objective aimed at—be it sowing of crops, harvesting, laying down pastures, etc.—with the least possible delay together with the secur-

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ing of successful results. Short cuts in farming are not always economical, and in pasture establishment this has led to many methods being tried. Surface cultivation of the level and undulating lands has often been resorted to, as it is considered that the work could be done more expeditiously than by first ploughing. Quite fair pastures have been established in this manner when reasonable attention has been given to clearing surface growth, but unquestionably such pastures do not come up to the standard of those preceded by ploughing and thorough cultivation, and at times results are deplorable, culminating in great wastage of seed and manure.

In ploughing virgin pumice land following the cutting and burning of the scrub, if all work is properly done, regrowth of scrub, fern, and tussock gives no trouble. Where the ploughing has not turned tussock growth right under and consolidation by rolling has not been attended to, one may expect a gradual regrowth of tussock to appear. (See Fig. 8.)

This is one serious drawback to surface cultivation of undulating and level lands which invariably carry tussock and light scrub. On undulating country carrying light scrub and little tussock and on which a good clean burn can be secured, better results can be obtained than on the level lands of tussock and scattered light scrub. On this account, surface cultivation of ploughable lands is not recommended for permanent pastures, but can be used within reason for temporary pastures.

Preparatory methods of burning scrub and tussock country and giving surface cultivation may be expeditious in getting seed sown, but are not expeditious in good pasture establishment. They entail too much subsequent work and management in controlling regrowth of the original surface growth, and allow too great an opportunity for weed invasion. Fortunately, cheap seed mixtures are seldom used as short cuts to pasture establishment, but such attempts do occasionally occur. (See Figs. 9 and 10.)

The greater area of the Central Plateau is blessed with an average annual rainfall of 55 inches, which is fairly evenly distributed throughout the year, and is a very strong contributing factor in bringing about fair success in pasture establishment under mediocre surface cultivation as well as being most important under thorough cultivation methods.

For many years pumice soils gave much trouble through mineral deficiency, but following scientific investigations, this has been overcome by the use of limonite and later cobalt.

Summary

Briefly, the methods for the establishment and maintenance of productive pastures on pumice soils consist of adequate and thorough cultivation and consolidation, the use of certified strains of grasses and clovers, liberal applications of superphosphate during the first two years, and adequate control of pasture growth by stocking and management. These methods give a dense pasture sward, which may then be maintained by annual topdressing and good management. The direct method of sowing permanent pastures on the first ploughing and the preparatory method of first sowing temporary pastures and root crops give equally good permanent pastures. The direct method is most adaptable to large areas, and the preparatory method of first temporary pastures and roots is suited to the individual farmer.

Slaughterings of Stock

THE following returns of slaughterings of stock at meat-export slaughterhouses and abattoirs for the eleven months, May-March, 1940-41, have been compiled by the Livestock Division:—

District	Cattle	Calves	Sheep	Of which Ewes were	Lambs	Swine
North Island						
Meat Export Slaughterhouses—						
Auckland	179,439	600,051	327,531	246,906	1,290,923	341,774
Poverty Bay-Hawkes Bay	64,953	57,689	626,066	364,959	1,441,171	30,208
Taranaki-Manawatu	89,697	219,788	425,289	286,255	1,537,714	180,556
Wairarapa-Wellington	40,049	31,009	370,042	221,573	1,052,199	43,039
Totals	374,138	908,537	1,748,928	1,119,693	5,322,007	595,577
Abattoirs	109,585	34,521	422,243	210,006	72,837	110,826
North Island Totals	483,723	943,058	2,171,171	1,329,699	5,394,844	706,403
South Island						
Meat Export Slaughterhouses—						
Nelson-Marlborough	1,493	10,043	49,697	22,644	183,858	11,022
Canterbury	11,779	43,188	574,267	503,984	2,197,756	33,958
Otago-Southland	8,144	39,488	373,560	328,654	2,398,620	6,800
Totals	21,416	92,719	997,524	855,282	4,780,234	51,780
Abattoirs	49,226	1,111	23,763	12,994	4,272	36,827
South Island Totals	70,642	93,830	1,021,287	868,276	4,784,506	88,607
Dominion						
Meat-expt. Slaughterhouses	395,554	1,001,256	2,746,452	1,974,975	10,102,241	647,357
Abattoirs	158,811	35,632	446,006	223,000	77,109	147,653
Grand Totals	554,365	1,036,888	3,192,458	2,197,975	10,179,350	795,010
Same Period, 1939-40—						
Meat Export Slaughterhouses and Abattoirs	465,672	1,039,764	3,239,398	1,811,345	9,028,900	635,593
Same Period, 1938-39—						
Meat Export Slaughterhouses and Abattoirs	455,386	1,003,409	3,551,959	1,856,586	8,868,786	830,629

Slaughterings of Pigs

The 149,541 pigs slaughtered in meat export slaughterhouses and abattoirs during March were distributed in weight ranges approximately as follows:—

Under 60 lbs.	995
61-110 lb.	64,919
111-120 lb.	12,579
121-160 lb.	51,887
161-180 lb.	11,332
Over 180 lb.	3,324
Sundries	4,505

111-120 lb.	87%, 9%, 4% of P1, P2 and Second Quality.
121-160 lb.	78%, 18%, 4% of P1, P2 and Second Quality.
161-180 lb.	57%, 33%, 10% of P1, P2 and Second Quality.

The grading of porkers is 93 per cent. first quality and 7 per cent. second quality, and of baconers 76 per cent., 19 per cent. and 5 per cent. of prime 1's, prime 2's and second quality respectively.

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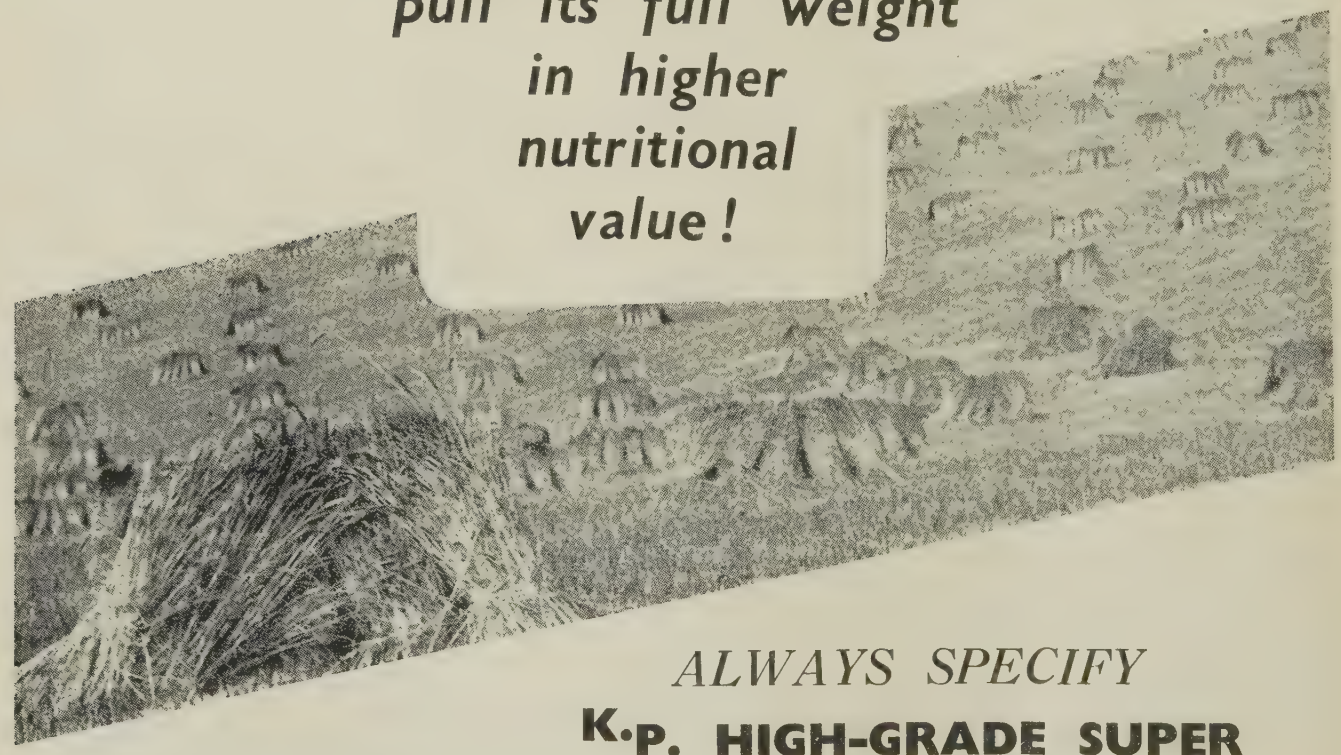

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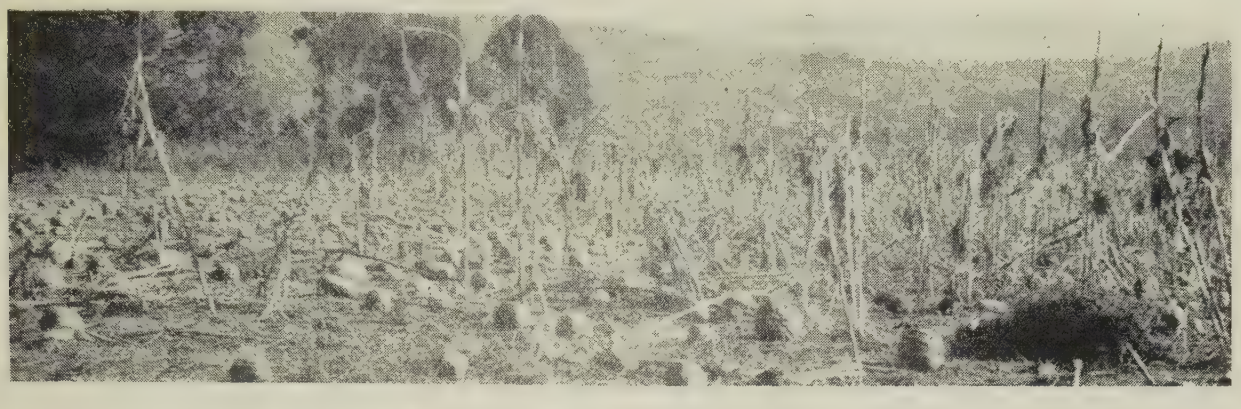

Maize and Kumi Kumis

Profitable Crop In The Bay of Plenty

By A. V. ALLO,
Instructor in Agriculture,
Tauranga.

IN the Bay of Plenty the bulk of the maize produced is grown along a coastal strip varying from five to ten miles in width. The soil varies from light, undulating pumice loam to drained peat, peat and pumice, and river silt loams. Climatic conditions vary considerably in different districts, and as the success of a crop is largely limited by the freedom or otherwise from frosts, it is obvious that in different districts there will be a slight variation in the technique adopted.

Preparation of Land

Generally speaking, the best maize is grown after grass, and on the majority of farms there is usually one paddock at least where the pasture is not producing the maximum of feed. This pasture may have suffered from grass grub attack, it may have run out after having been sown down with inferior quality seed, or it may have been neglected through faulty management or lack of topdressing. In such circumstances it would probably pay many farmers to plough up a paddock of this nature for their maize crop.

Ploughing should be done early. In all too many cases ploughing is left until the last possible minute, and then cultivation is so hurried that the maximum possible yield is not obtained. If the land is ploughed before the end of July and all later operations are thoroughly carried out, far better results would be obtained. After ploughing, allow the land to lie fallow for four to six weeks, and then work down with the discs and harrows.

The final seed bed should have a fine, firm tilth and should be ready by the end of October.

Time of Sowing

The date of sowing is largely determined by the climate. When late frosts are encountered, sowing may be delayed until near the end of November, but in districts relatively free from frosts it is more usual to sow the crop either at the end of October or early in November. In general, it may be stated that crops sown after the end of November are often fairly light, and may be damaged by an early autumn frost before the cobs are properly formed.

Photo above.—
A mature crop of maize and kumi-kumis.

Varieties

A great many varieties have been tried out in the Bay of Plenty, and as time went on unsuitable varieties have been eliminated, until now there are only a few standard varieties in common use. The variety of maize used depends to a large extent on the

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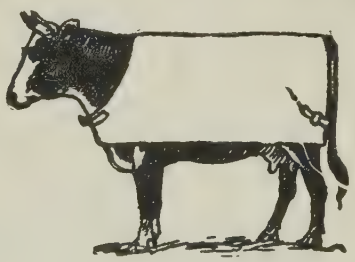

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district and climatic conditions. In colder districts with a short growing season an early maturing variety must be sown.

The most popular of such varieties are Early Butler and Ninety Day. These varieties are early maturing, but yield less than some of the other varieties, which, however, take longer to mature. In districts with a longer growing season the most popular growing varieties are Horsetooth and Motiti. The former, although a heavy yielder, grows very tall and is prone to lodging in strong winds, and consequently many growers are now favouring the Motiti variety, which has far better powers of wind resistance.

Rate of Seeding

When it is grown on a large scale, maize is usually sown through a double row planter. When only a small area is sown, seed is usually dibbled in by hand, for which hand sowers are obtainable. The rate of seeding varies according to the variety, but it will be found that 12 lb. to 15 lb. of seed are needed to sow one acre. Maize is usually sown in rows 3 ft. apart.

Manuring

Various manures have been tried out from time to time. Superphosphate is by far the most commonly used, at rates varying from 4 cwt. to 6 cwt. per acre, although most farmers use the lower figure.

Some farmers report success with a mixture of equal parts of super and blood and bone, or super and basic slag, at 4 cwt. per acre.

Intercultivation

Maize should be kept well cultivated. The more cultivation a maize crop receives the better will be the yield. Particularly is this so on the lighter soil, where weed growth is a serious problem.

Many farmers will give their land a light harrowing a few days after sowing to kill any young weeds. The first scarifying is usually given when the plants are 6 in. to 9 in. high, and it should be thorough and deep. Later scarifyings are given at intervals of from two to three weeks until the crop is so tall that further working would damage the plants. These later scarifyings should be fairly shallow so that the maize roots will not be injured.

Harvesting

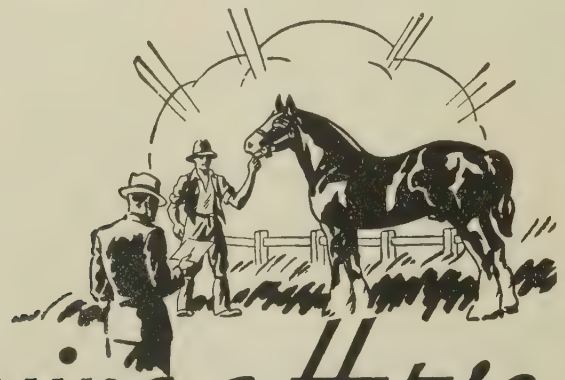
The grain is harvested in winter. Once it has ripened and hardened off it is usually allowed to experience a few frosts, as this is considered to improve the quality. Harvesting is done by hand, either by the farmer himself or by contract labour.

Kumi Kumis

The majority of maize growers in the Bay of Plenty grow kumi kumis with the maize crop. This increases the feed value of the maize stalks after the cobs have been harvested, and both cattle and pigs do well when grazing on the maize stalks and kumi kumis.

The kumi kumi seed is usually sown at the same time as the maize. Four or five seeds are dropped along the rows of the maize, each lot of seed being from 5 ft. to 6 ft. apart in the row, and the seeds are usually put in every fourth or fifth row of maize. Later, the plants may be thinned to two plants in each group, while often no further action is taken after the seed is sown.

Of recent years, a number of farmers have delayed sowing the kumi kumi seed until the maize is through the ground, claiming that by so doing the maize can be scarified for a longer period before the runners of the kumi kumis prevent further working.



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PIG-RAISING IN CANTERBURY

Pig-raising should have a definite place in Canterbury farming and especially on mixed farms. With the proper breed and management, net returns can be substantially assisted.

Profitable Side-line For Mixed Farms

Dry sows can be carried on grass and waste potatoes.

By A. H. FLAY and H. E. GARRETT, Canterbury Agricultural College, Lincoln.

CANTERBURY farms are well suited to side-line pig production. This is especially so on mixed cropping and dairy farms, where there is always a ready supply of roots, discarded and seconds of grain, and some skim-milk.

The essentials to successful pig raising are a suitable breed or breeds, satisfactory housing and paddock accommodation, and a supply of home-grown roots or grass to make the use of meals and grain profitable.

It is considered that the first cross, Tamworth boar on Berkshire sow or, vice versa, Berkshire boar on Tamworth sow, produces the most valuable pig, as this cross is suitable for either pork or bacon production. In some instances it may be desirable to replace gradually at little expense the present breeding stock with young animals of the desirable lengthy, light shouldered type.

Housing Requirements

The housing and paddocking of a few sows and a boar on Canterbury farms is simple. All that is required is a dry area of land suitably watered by a creek, water-race, pump, or windmill. This land can be fenced by the use of tight-lock hog netting into small sections, the size of these paddocks being such that four or five coils of netting are sufficient for four or five fenced areas. About five such pens are necessary to handle conveniently four sows and one boar where weaners and porkers are the main sources of pig income.

The cost of materials for such pens would be about £30, made up as follows:—5 coils tight-lock hog netting at £4 12s 9d, £23 3s 9d; 13 posts, £1 15s 9d; 16 stays, £2 4s; and 130 stakes, £3 8s.

This material enables the erection of five pens side by side, 2½ chains by 1 chain.

Into one or more of these areas a stack of wheat, oats, or barley straw is threshed. In the others a rough frame is erected upon which is placed a few loads of straw. By these means the cheapest form of warm, draught-proof house is provided. No other housing is necessary for many years, except perhaps for sows at farrowing time.

Feed Supply

Many Canterbury farms carry four or five milking cows, or at any rate on the better land they should do so. The skim-milk from these provides a part of the pig diet; cheap home-grown feeds, such as turnips, and especially mangels and swedes, are usually available, and seconds of grain from peas, barley, and wheat are nearly always available. These feeds usually have a low cash value. A lucerne stand from which a forkful of greenfeed is cut each day is valuable for keeping pigs in health, and in addition, the stands provide large bulks of cheap pasture feed.

A meat-meal ration necessary for balancing root and grain diets can be bought for approximately 1d. per lb.—a very cheap figure considering its

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utility in balancing the ration. For the boar and breeding sows between farrowings, good grass is used to provide a part of the diet. All these feeds are cheap when considered in relation to the returns obtainable from three or four sows properly managed.

The economical feeding of pigs as a side-line becomes much more difficult if too many sows are kept. On the typical mixed cropping farm two or three sows seem to be a satisfactory number.

With the accommodation mentioned, the daily work of pig feeding is not great. A short time morning and evening suffices to feed all pigs. An additional few minutes are required in the middle of the day when porkers or baconers are being fattened. Under average conditions a total of one hour daily should suffice to do all pig feeding, and usually this time should not interfere with the day's work.

The advantages of the additional work and organisation necessary for successful Canterbury pig raising can be summarised briefly by stating that each year (from one sow) two litters of seven pigs sold as weaners, porkers, or baconers should be obtained. Where four sows are kept, there should be 28 piglets weaned in the spring, and 28 again in January and February.

Watch the Market

Whether weaners, porkers, or baconers are produced will depend on the available feed supply and the ruling market price. With weaners at 25s a piece, it may pay to quit all litters, even if adequate supplies of seconds of grain are available, and correspondingly, when weaners are bringing 6s to 12s it may pay to carry them to pork and bacon weights. The decision made will depend always on the available food supply—skim-milk, seconds of grain, roots, cheap potatoes, etc.—and the ruling price for weaners.

Because of the supply of seconds of grain, it is more usual in Canterbury to carry the autumn litter into pork and bacon, but on certain farms and in certain seasons, it may be advisable to make heavy weights out of the spring litters. This spring (1940), for instance, with ample supplies of cheap potatoes on many farms, it will pay to carry spring litters on to pork and bacon.

In round figures at today's prices (1940) the income from four sows might be:—

Spring Productions.	
20 weaners at 20s.	£20
8 porkers at £3	£24
Autumn Production.	
22 porkers at £3	£66
6 baconers at £4	£24
Total	£134

A fairly large quantity of unsaleable potatoes, sprouted wheat, and rejected barley, as well as seconds of peas and grain, can be fed along with a little meat-meal before it would equal in value even one-half this gross income.

On mixed farms the efficient utilisation of skim-milk, some roots, and the normal supply of seconds of peas and grains by means of pigs is an important method of augmenting the gross income. It is, however, in adverse seasons when certain crops are unsaleable or saleable only at very low prices, such as potatoes in 1940, or in very wet seasons when there is much unsaleable sprouted wheat and barley, as occurred in the summer and autumn of 1936, that pig raising on mixed farms becomes of considerable importance to the farmer.

The normal cash income from the pigs can be substantially increased by feeding such unsaleable products, and the loss that is inevitably associated with such happenings considerably reduced.

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Practical Examples

In the winter and spring of 1940 the farmer on a mixed cropping property carrying five cows and four sows could, with the aid of meat-meal, produce from his unsaleable potatoes income approaching something of the order given below:—

Autumn Litters (28).

14 porkers at £3	£42
14 baconers at £4	£56

Spring Litters (28).

8 weaners at £1	£8
20 baconers at £4	£80
Total	£186

Under average normal conditions the feed used by all pigs, including the sows and one boar, would approximate:—

Meat-meal—1 ton at £12	£12	0	0
Barley seconds—30 bushels at 3/6	5	5	0
Wheat seconds—50 bushels at 5/-	12	10	0
Skim-milk—2,500 gallons at ½d.	5	4	0
Potatoes (cooked)—15 tons at 30/-	22	10	0
Total	£57	9	0

The pigs would also be grazed.

Feeding green lucerne to light baconers in the mid-summer dry period.

The results obtained on two farms co-operating with the Canterbury Agricultural College Advisory Service show the advantages of pig raising on Canterbury farms. The first is an illustration of the annual income obtained from pigs. The second indicates what can be done with unsaleable produce when floods or low prices prevent normal marketing of farm produce.

Example 1

This is a small mixed farm carrying 10 milking cows and two sows, rearing four or five heifer calves, and

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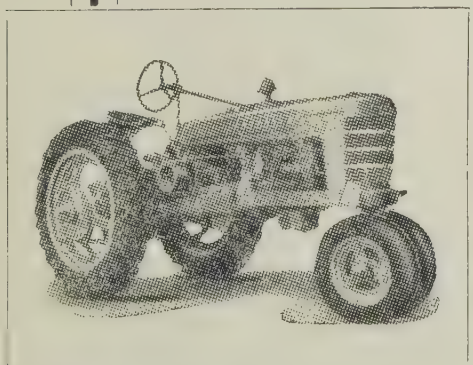

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growing small areas of wheat, barley, potatoes, and mangels. The pigs carried are two Berkshire sows, which are housed under straw shelters on an otherwise waste, unploughable corner. Two small yards and cheaply constructed fattening houses are the only other pig accommodation. The progeny of the two sows were sold as weaners and porkers. Particulars of pig income and costs of feed purchased are:—

Example 2

This farmer carries five sows and milks five cows. He has Large Black and Berkshire sows, and uses Berkshire and Tamworth boars. For the season given he obtained the usual spring income from the sale of weaners, carrying none to the porker stage. His surplus grain seconds had been used up the previous autumn. The autumn litters normally would have been sold as pork, but because of flooding and the wet harvest (February, 1936), he had 115 sacks of unsaleable sprouted wheat, which went blue and rusty coloured with moulds. So mouldy was this wheat that the pigs would eat it only after soaking and with a sprinkling of meat-meal. From weaning, the pigs received a little skim-milk or other feed along with sprouted mouldy wheat and meat-meal. The meat-meal ration was small.

Year.	Gross Income.	Feeds bought.	Net Income.
1937	£60 16 6	½ ton meat-meal, £6	£54 16 6
1938	£68 1 6	½ ton meat-meal, £6	£62 1 6
1939	£39 11 10	¼ ton meat-meal, £4	£35 11 0

The results from the autumn litters in 1936 at the prevailing prices were:—

Pigs weaned	32
Pigs reared to selling stage	32
Sold as—	
Baconers	27
Porkers	4
Others	1
Total	32

The gross income from the 32 pigs was £80 1s. 10d. The meat-meal used cost £1 4s., and the 32 weaners at 10s. (March, 1936, price) cost £16, making a total outlay of £17 4s. The net return was thus £62 17s. 10d. The mouldy wheat used comprised 115 sacks, the return per sack of wheat was 11s., and the per bushel of unsaleable mouldy wheat was 3s. 4d.

Had it not been for side-line pig farming on this property, the returns for the season would have been substantially lower. The returns, it must be remembered, are those obtained in 1936. Today, these returns would be almost doubled.

Conclusion

Pig raising should have a definite place in Canterbury farming and especially on mixed farms. With the right breed of pigs, a suitable lay-out of paddocks and straw stacks and reasonable feeding, pig production can be made to assist net returns substantially. The enterprise deserves more attention.

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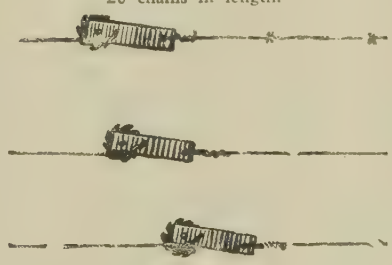

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Pasture Improvement By Crop Rotation

By A. D. MERCER,
Fields Instructor, Greymouth.

Manuring and Seed Mixtures For West Coast Land

THE rotation suggested in the previous article is as follows:—

First Year.—Autumn-sown oats and tares; followed by turnips or rape sown with temporary seeds mixtures.

Second Year.—Temporary ley.

Third Year.—Temporary ley.

Fourth Year.—Sown to permanent pasture.

In adopting a course of manuring over this period, consideration must be given to the immediate needs of each crop and to securing the maximum benefit for the ensuing pasture.

First Essential

The first essential on all West Coast soils, once adequate drainage is provided, is a liberal dressing of lime. The most suitable form for application locally is a mixture of burnt lime and crushed limestone, commonly known as "half and half." The initial dressing should be at the rate of 1 ton per acre, and the manuring, 3cwt. of basic slag or superphosphate per acre, which for convenience and to facilitate sowing may safely be mixed with the lime provided that the mixture is not allowed to stand for any length of time.

Seeding should be at the rate of two bushels of oats and one bushel of winter tares per acre. This crop is ready for feeding-off or making into silage in the spring. It is nutritious and palatable feed either for sheep or dairy cattle, and is at the most nutritious stage when the plants begin to flower. In addition to their value for stock, tares possess the property, common to all leguminous plants, of enriching the soil in nitrogen, while at the same time having a smothering effect on weeds.

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Turnips or Rape

As soon as this crop is fed-off, the land should be ploughed and prepared for a sowing of turnips or rape together with a grass and clover mixture. Manuring in this case should be 2cwt. per acre of superphosphate or a mixture of super and ground rock phosphate. These ground rock phosphates produce their best results on soils deficient in lime, particularly on swampy or peaty soils and in a district of high rainfall.

Turnips and rape are among the crops which seem capable of deriving the maximum benefit from this type of phosphate, which will also, by reason of its comparatively low solubility, prove of benefit to succeeding crops, which in the system under discussion is a consideration of some importance.

Seeds Mixture

The seeds mixture to be sown with the turnips or rape for a short-term ley of two years would be:—

	Per acre.
Certified Italian ryegrass ..	25lb.
Red clover	4lb.
Alsike clover	2lb.

If it is intended to extend the period to three years the seeding should be modified to a certain extent by the addition of timothy, although on fertile soils under West Coast conditions a good strain of Italian ryegrass will persist for a surprisingly long time. The addition of timothy, however, would be a decided advantage if hay is to be made. The mixture would then be:—

	Per acre.
Certified Italian ryegrass ..	15lb.
Timothy	10lb.
Alsike clover	3lb.
Red clover	3lb.

Feeding-off

When grass is sown with turnips care must be taken to ensure that feeding-off the turnips is not too long delayed,

otherwise the grass becomes too rank in growth and possibly musty underneath. A heavy concentration of stock and a quick grazing-off will ensure that the sward carries a comparatively short fresh growth through the winter. The other extreme is also to be avoided, for if grazing is too hard and prolonged the sward is weakened and recovery in the spring is slower than it should be.

Provided the dressings of lime and phosphates recommended for the previous crops have been applied, this seeding should make good growth for the two years of its duration without further topdressing unless in exceptional circumstances. It should provide two cuts of hay and grazing at that time of year when poor pastures are running to seed.

Final Ploughing

After the second crop of hay has been taken the final ploughing and subsequent cultivation is carried out through the summer in readiness for the autumn-sowing of the grass mixture. At this stage a further application of one ton of lime and 3cwt. of basic slag or superphosphate per acre should be sufficient to maintain the pasture in good condition for the next three or four years.

Basic slag is another slow-acting phosphate, the response from which is perceptible over a longer period than is the case with a readily soluble fertiliser, such as superphosphate, and although the cost per ton is higher in the case of slag, the outlay over a period is not so heavy, as applications are not necessary at such frequent intervals as is the case when superphosphate is employed. Basic slag was used to some extent on the West Coast some years ago, and gave excellent results.

Permanent Pasture

The seed mixtures to be sown in order to secure a high-producing permanent pasture will vary considerably in a district such as the West Coast, and must be modified in different areas to suit local conditions of soil and climate. In this matter farmers can always obtain individual advice, but a typical mixture for the rich lands of the river-flat type may be given.

	Per acre.
Certified perennial ryegrass	12lb.
Certified Italian ryegrass ..	4lb.
Timothy	8lb.
Meadow foxtail	3lb.
Poa trivialis	2lb.
Crested dogstail	2lb.
Alsike clover	2lb.
Certified Montgomery red clover	2lb.
Certified white clover	1lb.
Total	36lb.

On Lighter Lands

On the lighter terrace lands of totara country the following mixture could serve as a guide. Cocksfoot is included in this mixture and omitted from the previous one, but either mixture may be modified to suit particular systems of management. It is useless to sow cocksfoot unless the pasture can be but lightly grazed by cattle for the first two years; it is easily eaten out under hard grazing, while establishment is often prevented by a too heavy seeding of ryegrass. Unless, therefore, it is intended to give the cocksfoot some consideration in order to secure its establishment it is better omitted from the sowing altogether and the ryegrass and timothy increased accordingly.

	Per acre.
Certified perennial ryegrass	10lb.
Certified Italian ryegrass ..	4lb.
Akaroa cocksfoot	10lb.
Timothy	6lb.
Crested dogstail	2lb.
Certified Montgomery red clover	2lb.
Certified white clover	2lb.
Total	36lb.

Lotus major has a distinct sphere of usefulness on practically all soil types on rough unploughable country, where its establishment is the first step towards stock carrying and subsequent breaking in, but on good level pastures it should be replaced by more productive species.

Mixtures somewhat similar to these, sown on land in good heart and adequately prepared by thorough cultivation, will treble the stock-carrying capacity of the greater part of the present West Coast grass lands.

Summary

First-class permanent pasture must be the basis of West Coast farming practice, and the plough is the sole means of establishing it.

Pastures cannot be maintained in first-class condition without an occasional use of the mower, demanding the reasonably smooth surface resulting from ploughing rough grassland.

A definite system must be evolved, necessarily in most cases on a small scale, by means of which a planned rotation of crops will ensure a preparatory period of cultivation.

During this period the crops grown will increase the stock-carrying capacity and provide feed at different seasons, at the same time maintaining the fertility of the land and bringing it to a fit condition for a seed-bed.

Adequate lime must be supplied, and phosphates of a slow-acting nature, such as basic slag or ground rock phosphates, are likely to prove the most economical under the prevailing conditions.

The inclusion of cocksfoot in any seed mixture depends on whether the system of stocking and pasture management is such as to give it a reasonable chance of establishing. In the majority of instances, this is not the case at present.

EXCLUSIVE TO THE
29 H.B. MEN'S STORES.

Hallensteins

29 MEN'S STORES: From Whangarei in the North to Invercargill in the South.

Manures for Maize

"HOKIANGA" (RAWENE):—

(1) I have been using super and lime for topdressing applied in autumn and have had good results; would I definitely have as good results in 1941 spring if I applied the lime in December, 1940, and the super in 1941 autumn?

(2) What is the best manure or manures for maize in Hokianga district soil sandy clay second class?

FIELDS DIVISION:—

Following your previous practice of applying super and lime in the autumn with good results, equally as beneficial results should be obtained from your proposal to apply the lime in December, 1940, followed by the super in the 1941 autumn.

For the manuring of maize on your class of country I would recommend the following mixture:—Superphosphate, 3 parts; blood and bone, 1 part; sulphate of ammonia, 1 part.

If, however, sulphate of ammonia is not available and ammoniated super is obtainable, the mixture could be modified to:—Ammoniated super, 4 parts; blood and bone, 1 part.

Either of these mixtures could be applied at the rate of 5 cwt. per acre.

Fertiliser Notes

FERTILISER MIXTURES FOR RAPE

THE registration of fertilisers in July of each year always brings with it items of considerable interest. In the current year's registrations the rape mixtures in particular have been tabulated and examined, and several facts of importance emerge, chief among which are the following. For a total of 31 rape mixtures examined, the commonest constituents are blood and bone, rock phosphate, superphosphate, and lime, the latter declared as a filler. Incidentally, lime in some mixtures is used to the extent of 30 per cent. Secondly potash is used in more than half of the proprietary mixtures regardless of the district for which the mixture is designed or the requirements of the crop. Thirdly, 28 out of the 31 mixtures contained nitrogen in amounts varying from 3 per cent. to .3 per cent.

In the following discussion it is assumed that the farmer wishes to obtain the best results from his rape crop and not in any crop which may follow. In such a case it is difficult to see the justification for the use of fertilising ingredients which are but slowly made available to plants. It is by no means uncommon to find up to 25 or 30 per cent. of Nauru rock phosphate included in a mixture for use with the rape crop. While Nauru rock phosphate applied to grassland gives good results in some cases on acid soils, its inclusion in mixtures to be used for the rape crop cannot be recommended. The phosphate in bonedust also becomes freely available only with the passage of time.

Of the rape mixtures, the following table shows the average analysis:—

No. of mixtures.	Average Per Cent. Nitrogen soluble in water.	Nitrogen insoluble in water.	P_2O_5* insoluble in water.	P_2O_5* soluble in water.	Potash soluble in water.
31	.87	1.26	8.88	12.22	1.49

* P_2O_5 is the symbol for phosphoric acid.

It must be borne in mind that in this table the figures show the average percentage of the various constituents in the mixture. Although there must be many better than this, there are many much worse. One is left with the obvious question of the value of small amounts of nitrogen and potash in relation to the price of the fertiliser.

This question is not easy to answer, but the farmer would do well to take

By I. L. ELLIOTT,
Supervisor of Fertiliser Supplies, Wellington.

into account when purchasing a fertiliser mixture the price of nitrogenous, potassic, and phosphatic fertilisers sold "straight," the price at which simple mixtures such as ammoniated superphosphate and potassic superphosphate can be bought, and approximately what he pays per unit of fertilising ingredient in his proprietary mixture. There are definite indications that the sales of proprietary mixtures are tending to decline, while simple mixtures such as ammoniated and potassic super tend to take their place.

The farmer should always remember that he is the ultimate consumer of fertiliser and that, as such, he is in the position to create a demand for the materials which he finds are really essential to good farm practice. There is little doubt that much salesmanship of fertiliser is good but misinformed. The farmer must take care to see that he is not misinformed, and from this point of view should do all in his power to learn about the nature and use of fertilisers. There can be relatively little complaint with fertiliser mixtures for whose essential ingredients the farmer pays only slightly more than the price paid for the same ingredients in "straight" fertilisers.

The problem of fertiliser use is not merely a problem of the mixture. It is a problem of the soil and the requirements of the individual crop. The farmer should know more about his own soil requirements than the salesman, and his knowledge should also be extended of the requirements of each crop.

Briefly, the main object of this article is to impress upon the farmer the value of being able to clarify his ideas of what he requires and to see that his desires are met by those who supply him. He must create an intelligent and well-informed demand. Seeing that he pays the piper, let him call the tune.

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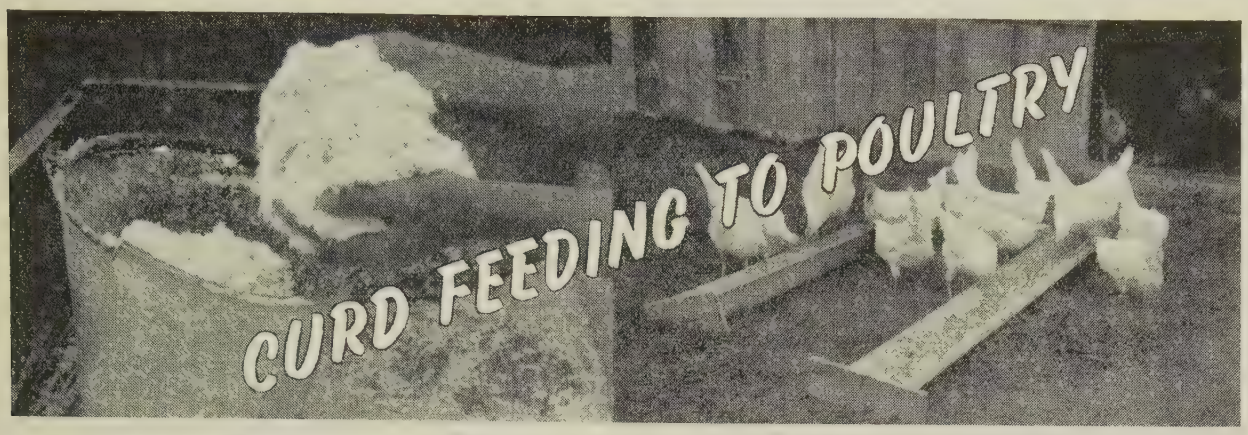
Seed Potato Certification.

FOR reasons of economy, the list of growers whose potato crops have been provisionally certified by the Department of Agriculture will not appear in the "Journal" this year. Copies of the list will be available on request from local offices of the Department, however.—*Fields Division.*



Most of the eggs produced in New Zealand come from farms which regard poultry-keeping as a side-line, and on many of these farms separated milk is available. What is the most profitable way of using separated milk? To investigate the economics of feeding curd to poultry and to demonstrate that curd feeding to poultry is a satisfactory alternative or adjunct to pig-keeping on dairy farms and perhaps offers employment for women, a trial has been carried out at the Ruakura Animal Research Station. This article summarises the results obtained in the first two years of the trial.

By

E. R. MARRYATT,
Technician, Ruakura Animal Research Station.

THE object of curd feeding to poultry is to reduce to the minimum the amount of purchased foods used. Separated milk contains only about 10 per cent. of dry matter, but drained curd contains about 20 per cent. of dry matter, so that the birds get twice as much food from eating the same weight of drained curd as from separated milk. The dry matter of separated milk, moreover, is mainly protein, milk-sugar and ash, but the dry matter of drained curd is mainly protein, for most of the milk-sugar and ash have been removed in the whey, which is therefore valuable for feeding to pigs along with other foods.

Because drained curd is a protein-rich food, some food rich in carbohydrates should be fed with it. Maize is suitable for this purpose, as about 70 per cent. of its dry matter is starch.

Making the Curds

The preparation of curd and the details of feeding the poultry in this experiment at Ruakura were arranged by Mr. E. C. Jarrett, Poultry Instructor, Department of Agriculture, Auckland, and he has supervised the management of the flock from the beginning. The separated milk curdles in wooden barrels (Figs. 1 and 2), which are housed in a wooden box (Figs. 2 and 3) to maintain the temperature of the curdling milk.

Most rapid curdling takes place when the milk is kept warm, so that it is best to pour the milk into the barrels while it is still warm after separating. In cold weather the temperature inside the box can be maintained by lighting a hurricane lamp and placing it inside the box between the barrels. Some soured milk or some whey may be used as a starter when curdling is first started, but the small amount of whey left in the barrels thereafter is sufficient to maintain curdling.

When a good hard curd has formed, sufficient for at least the following day's feeding is put into a draining box to dry. The draining box (Figs. 2, 3, 4, and 5) is 2 ft. by 4 ft. and 9 in. deep with a sloping V-shaped bottom, like a cheese vat (Fig. 5), and with a plug at the lower end. The box is in the open to allow wind access and is covered with a removable and ridged roof to keep out rain and animals. The triangular ends of this cover are fitted with bird-netting to let the air circulate. Wire-netting is sufficient cover in fine weather, and the lid at Ruakura has been adapted so that it can readily be changed from wire-netting cover to an iron one. The curd is placed at the raised end of the box so that the whey may drain off into a receptacle, where it is collected for the pigs.

The original feeding programme laid down by Mr. Jarrett was:—

From September to March:

"Feed practically all curd; the mixture to consist in parts by measure of:—

Curd, 4 to 5 parts.
Pollard, 1 part.
Maize-meal, 1-3 part.
Green feed (chopped), 1½ to 2 parts.

This mixture is to be put in the troughs at 8 a.m. The troughs are to be filled fairly full, and the birds kept inside the house until they have eaten their fill. Then let them out, but allow them to come back for more. The quantity should be as much as will be eaten so that nothing is left by the following morning. At night the birds are to be allowed ½ oz. of grain (wheat and maize) each in the litter.

From March to September:

"As the curd goes off, increase the pollard and maize-meal and add meat-meal; morning mash with no curd will consist of 5 parts of pollard, 2½ parts of bran, 1 to 1½ parts of maize-meal, and 1½ to 2 parts of meat-meal. Allow 1 oz. (or 1¾ oz. if necessary) of grain in the evening.

Poultry fed on curd may scour, and a lime solution should be poured over the curd. Make a lime paste with 2 lb. of rock lime and 1¼ quarts of water and add a tablespoonful of the paste to a gallon of water. Pour this over the curd."

The lime solution was used only once and no serious scouring occurred.

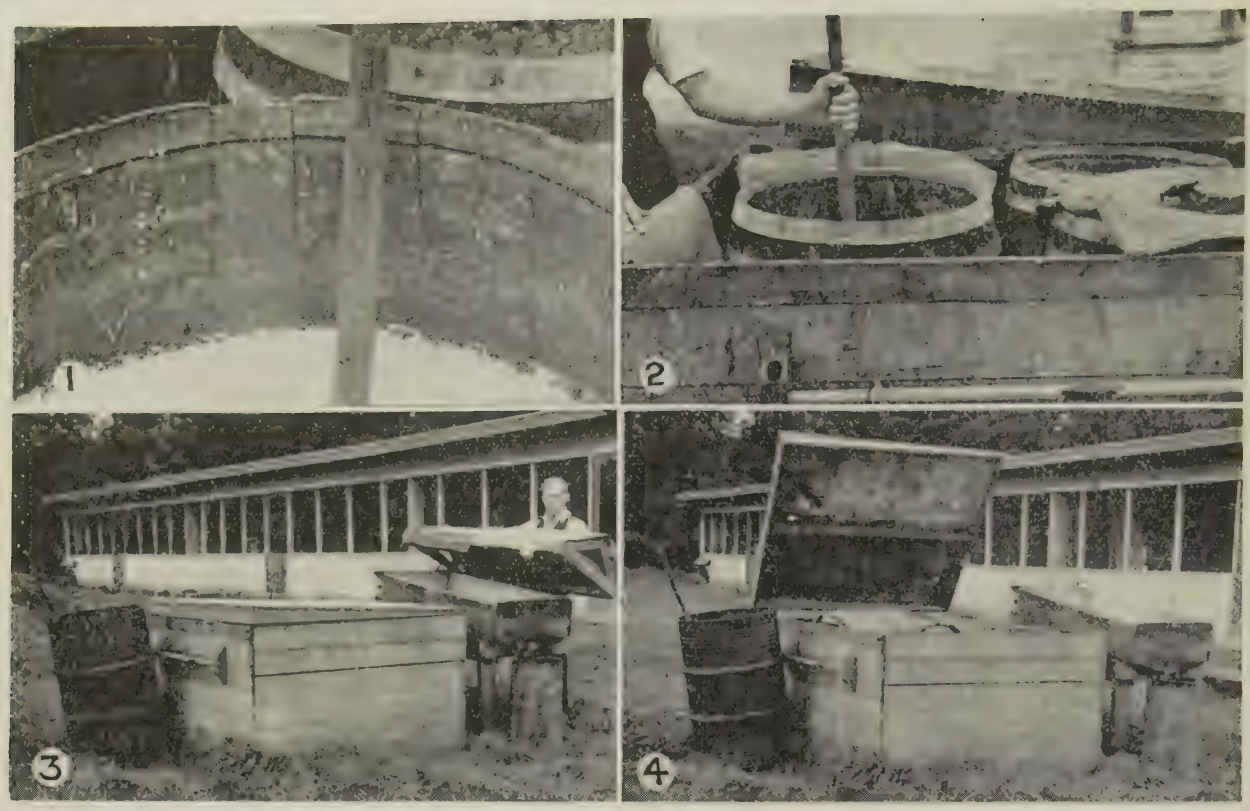


Fig. 1.—The separated milk being measured with a dip-stick in the barrels where curdling takes place.

Fig. 2.—Similar to Fig. 1, but also showing the arrangement of the barrels in the heat-retaining box and the inclined curd-draining box in the background.

Fig. 3.—Whey-drum on left; covered box for barrels in centre; cover being removed from curd-draining box on right.

Fig. 4.—Lid being taken off the box which protects the barrels.

Fig. 5.—A close-up of curd-draining box.

Chaffed grass was always included in the morning mash, and the birds ate all of it, although they had a free range on grass pastures. The value of this chaffed grass to the birds is not known. Figs. 6 and 7 show the method of chaffing the grass and what it looks like when chaffed. Prairie grass was being used at the time these photographs were taken. Fig. 8 shows the morning mash in the trough.

Valuation of Birds

The trial started on April 1, 1938, with 120 White Leghorn birds, consisting of 22 hens and 98 pullets which were hatched on October 19, 1937. During 1938-39, 51 birds were culled and 14 died. On April 1, 1938, the flock was valued at £42 5s, and on March 31, 1939, at £13 15s. Culls brought £5 10s 6d, so that the reduction in value of the flock for the year was £22 19s 6d.

On April 1, 1939, the flock consisted of 55 hens and 73 pullets which were hatched on September 21, 1938. During 1939-40, nine hens and 16 pullets died, and eleven pullets were culled. On April 1, 1939, the flock was valued at £41 2s 6d, and on March 31, 1940, at £22. Culls brought £1 4s, so that the reduction in value of the flock for the year was £17 18s 6d.

Curd and Purchased Food

The object of curd feeding to poultry is to reduce to the minimum the amount of purchased food used. The separated milk for curd feeding was supplied from a herd of 10 cows

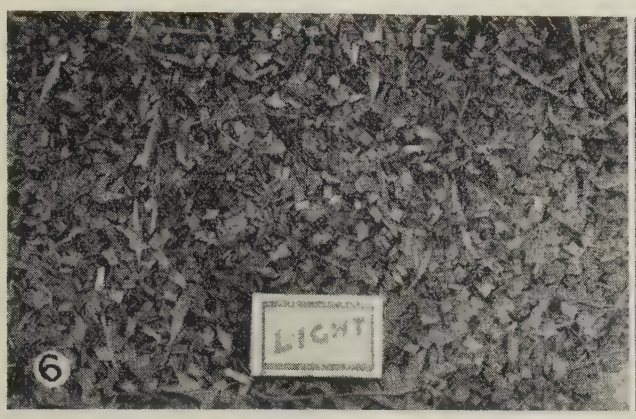


Fig. 6.—A close-up of the chaffed grass.

Fig. 7.—The morning-mash consisting of mixed meals, drained curd and chopped grass ready for the birds.

grazed on the feed flavour investigation section at Ruakura, and this herd did not supply quite enough separated milk for the purchased foods to be reduced to the absolute minimum. Reviewing the work of the two seasons, a satisfactory proportion would be 12 to 15 cows for every 100 birds kept.

The landed cost of purchased foods for the 1938-39 season was £51 14s 11d, and for the 1939-40 season £61 1s 9d. The quantities of purchased food and curd consumed are as follows:—

Mean number of birds	111	117
Meals	12,430lb.	7,195lb.
Curd	12,420lb.	8,682lb.
Grain	3,828lb.	2,797lb.

Separated milk may be expected to supply from 17 to 28 per cent. of its weight in drained curd, and from 60 to 69 per cent. of its weight in whey. A loss in weight of 5 to 16 per cent. will occur. Stated more generally, separated milk may be expected to produce curd to about one-quarter of its weight and whey to about two-thirds of its weight. The whey secured in this trial was used for pig feeding.

Egg Production

In the 1938-39 season 20,119 eggs were produced, realising £130 4s 9d net, or 1s 6½d per dozen, and in the 1939-40 season 20,371 eggs realising £154 8s 2½d net, or 1s 10½d per dozen. In the former season the pullets did not begin to lay until the end of April, while in the latter season the pullets were hatched a month earlier and began to lay in late February. In the 1938-39 season 13 per cent. of the eggs produced were laid in the first quarter, and in the 1939-40 season 22 per cent. Thus, the returns for the second season benefited from the high winter egg prices.

In the 1938-39 season the net income (receipts for eggs less cost of purchased foods and reduction in value of the flock) was £55 10s 4d, and in the 1939-40 season £75 7s 11½d. This is a return of £5 11s per cow in the former season, and £7 10s 9d in the latter, and compares very favourably with pig-keeping. The production of a baconer per cow is looked on as a very high standard of pig production on dairy farms, and gives a gross return of £3 15s to £4 per cow. The production of a baconer requires from 750 to 800 feed units; separated milk will supply only 500 units, and the rest must be provided by purchased or farm-grown foods.

An alternative comparison may be made by comparing the value of a gallon of separated milk for pig and poultry feeding. M. J. Scott in his "Results of Pig Census," which appeared in the "Journal" for November and December, 1938, and January, February, March, and April, 1939, gives the earning value of one gallon of separated milk for pig feeding as ranging from 0.31d to 1.96d. These values were estimated from information supplied by 182 farmers from all over New Zealand for the year ending April 30, 1938. No allowance was made for labour or depreciation on buildings or stock.

On the same basis, the earning value of one gallon of separated milk when fed as curd to poultry in the 1938-39 season was 3.7d when the whey was not used, and 4.0d when the whey was used for pig feeding and valued a ½d per gallon. Allowing for the depreciation in the value of the flock, one gallon of separated milk was worth 2.6d as curd for poultry feeding and 2.9d as curd for poultry and whey for pigs. In the 1939-40 season, with the higher average price for eggs and with less milk used, even better results were secured.

This comparison of pig and poultry-keeping as side lines on dairy farms shows that poultry-keeping offers an alternative to pig-keeping, and at present may be made a more profitable enterprise.

All photographs are by the author.

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Pedigree Sow Records

Contributed by the LIVESTOCK DIVISION.

OF the 38 sows recorded for the quarter ended February 28, 1941, 34 had litters sufficiently good to be included in one of the five grades set out below:—

Grade.	Litter Weight.	
	At 3 Weeks.	At 8 Weeks.
1	120 lb.	360 lb.
2	100 lb.	300 lb.
3	90 lb.	270 lb.
4	80 lb.	240 lb.
5	70 lb.	210 lb.

THE following table sets out the performance of each breed as an average for all sows recorded during the quarter:—

Averages.

Breed.	No. of Sows.	No. of Pigs per Litter.		Litter Weight at		Weight per Piglet	
		Born.	Weaned.	3 weeks.	8 weeks.	3 weeks.	8 weeks.
Berkshire ..	21	9.3	7.1	85.7	290.4	11.9	40.7
Large Black ..	1	11.0	10.0	126.0	417.0	12.6	41.7
Large White ..	1	11.0	6.0	72.0	221.0	12.0	36.8
Tamworth ..	15	9.1	7.9	92.5	308.2	11.8	39.2

In the following list the owner's name and address are given, followed by the herd book numbers of the sire and sow, the weights at three and eight weeks, the number of pigs born and weaned, and the grade of the litter.

Berkshires.

Owner's Name and Address.	Herd Book No. of—		Litter Weight (lb.)		No. of Pigs		
	Sire.	Dam.	3 weeks.	8 weeks.	Born	Weaned	Grade of Litter
Burmeister, O. P., Kairanga R.D., Palmerston North ..	16616	13989	72	227	7	5	5
Dron, W. D., R.M.D. Richmond, Nelson	15328	14465	76	254	8	6	5
Dron, W. D., R.M.D. Richmond, Nelson	15328	15348	121	350	15	11	2
Dron, W. D., R.M.D. Richmond, Nelson	15328	14181	102	339	12	9	2
Dron, W. D., R.M.D. Richmond, Nelson	15328	12322	106	387	13	9	2
Dron, W. D., R.M.D. Richmond, Nelson	15328	11184	58	210	5	5	—
Duncan, McLean Ltd., Box 137, Greymouth	12818	15324	55	208	9	7	—
Ellerm, O. C., Sanson R.D., Palmerston North ..	14949	12708	123	425	13	9	1
Manutuke Pig Club, c/o R. K. Hepburn, Manutuke ..	13858	13606	100	268	14	8	4
Morison's Bush Pig Club, c/o A. Maidmont, Greytown	12980	14020	76	255	7	6	5
Pohangina Pig Club, c/o T. J. Spelman, R.D. Ashhurst	15397	16414	77	269	7	6	5
Pukekohe East Pig Club, c/o T. E. Morgan, R.M.D. Pukekohe East	13577	15558	82	311	11	7	4
Rotomanu Pig Club, c/o H. E. Hodgkinson, Rotomanu, Westland	14690	12798	124	374	11	8	1
Rowan, L. R., Milson's Line, Palmerston North ..	12589	14801	99	291	8	7	3
Rowlands, T. E., Ruthin R.M.D., Kaiapoi	12628	11808	95	363	8	8	3
Rowlands, T. E., Ruthin R.M.D., Kaiapoi	16078	16325	70	276	8	6	5
Ruakaka Pig Club, c/o J. C. Sandford, Ruakaka ..	14246	12814	70	259	10	8	5
Ruatoria Pig Club, c/o J. C. Wilson, Takamore, Ruatoria	13156	14454	80	283	7	5	4
Stokes, N. W., R.M.D. Kaikoura	15290	15813	44	136	6	6	—
Te Kowhai Pig Club, c/o A. R. Gifford, Te Kowhai, Frankton	15147	12939	115	353	8	8	2
Torere Pig Club, c/o Hori Mio, Torere, Opotiki ..	16152	14375	84	261	8	6	4

Large Blacks.

Turner, C. F., P.O. Box 161, Rotorua	2271	2404	126	417	11	10	1

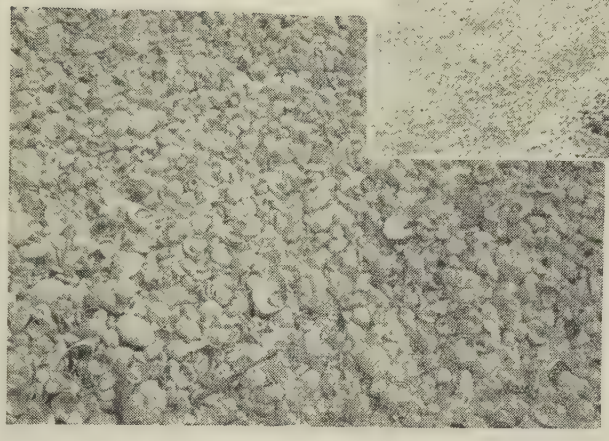
Large Whites

Norsewood Pig Club, c/o S. L. Merrick, R.D. Norsewood	5352	5538	72	221	11	6	5

Tamworths.

Dunkley & Kermode, Winchmore, R.D. Ashburton ..	11609	11989	107	384	11	10	2
Dunkley & Kermode, Winchmore, R.D. Ashburton ..	11609	11986	72	266	8	7	5
Grooby, L. H., Umukuri, R.M.D. Motueka	11870	11876	123	430	10	10	1
Hamilton, C. J. Manutuke	3548	10009	137	402	12	11	1
Hari Hari Pig Club, c/o J. McKay, Hari Hari ..	8252	11634	98	325	8	7	3
Kaukapakapa Pig Club, c/o F. Taylor, Kaukapakapa ..	11728	12162	44	130	4	4	—
Knight, R., Westmere, Wanganui	10498	10745	108	337	11	8	2
Lawrence Bros., Mt. Hilton, Hawarden	12160	12264	74	250	7	7	5
Mahakipawa Pig Club, c/o W. E. Bryant, Mahakipawa	11652	9666	70	234	6	5	5
Murchison Pig Club, c/o R. G. Thomson, Murchison ..	11181	10317	73	242	8	6	5
Rockville Pig Club, c/o W. Lash, Rockville	12060	11306	119	375	9	9	2
Suter, E. A., Waiau Pa	10688	10938	108	366	12	9	2
Suter, E. A., Waiau Pa	9430	11304	111	362	10	9	2
Tadmor Pig Club, c/o C. P. Palmer, Tapawera ..	11486	12033	83	268	9	8	4
Waihi Pig Club, c/o A. C. Davidson, Waihi	5830	10733	80	252	12	8	4

Shell Lime Deposits



Accumulating shell on the sea front, and a close-up of new shell deposits.

— By —
C. WALKER,
Instructor in Agriculture,
Thames.

ON the Hauraki Plains and at other points on the Coromandel Peninsula, where lands adjacent to the sea once formed part of the ocean bed, there are fairly considerable patches of sea shell. A striking feature of these deposits is the depth to which pure shell has accumulated, while the freedom from extraneous material, such as sand and humus, is also noteworthy.

In parts, fish bones, traces of decomposed seaweed, and even remains which appear suspiciously like those of human origin, are found intermixed with the shell. These would no doubt have an appreciable fertilising value where these deposits are exploited commercially.

At three points—Kopuarahi, Miranda, and Whitianga—lime works have been established with a view to converting these shell deposits into commercial lime.

The plants at both Kopuarahi and Miranda have outputs of about 12,000 tons a year, and their products are widely distributed throughout the province. The product itself is very finely ground, and, judging by the natural deposits, it should be very uniform in quality.

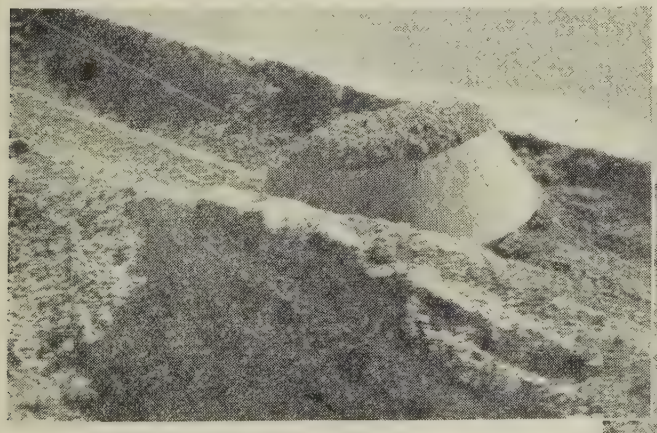
At Whitianga the output is much less, being nearer a 200 tons maximum in any year, and the output is largely used on the farm where the works are situated.

While the deposits are by no means exhausted, those at Kopuarahi and Whitianga are much less than at Miranda, where the shell belt covers an area two miles in length by a depth in places up to 1½ miles. Moreover, this deposit is being rapidly enlarged by the accumulation of new shell brought in from the Hauraki Gulf by the sea.

Being inland, both the Kopuarahi and Whitianga deposits have no opportunity of being enlarged, and consequently there will come a time when the present beds will become exhausted.

Generally speaking, farmers hold shell lime in high regard. Naturally, some favour lime from one deposit more than that from another, but, as it will be apparent that little significance can be attached to this very human tendency.

What is important, however, is that these deposits of shell are being employed to good advantage. The works are performing a useful function, and are providing a much needed service to the farming community



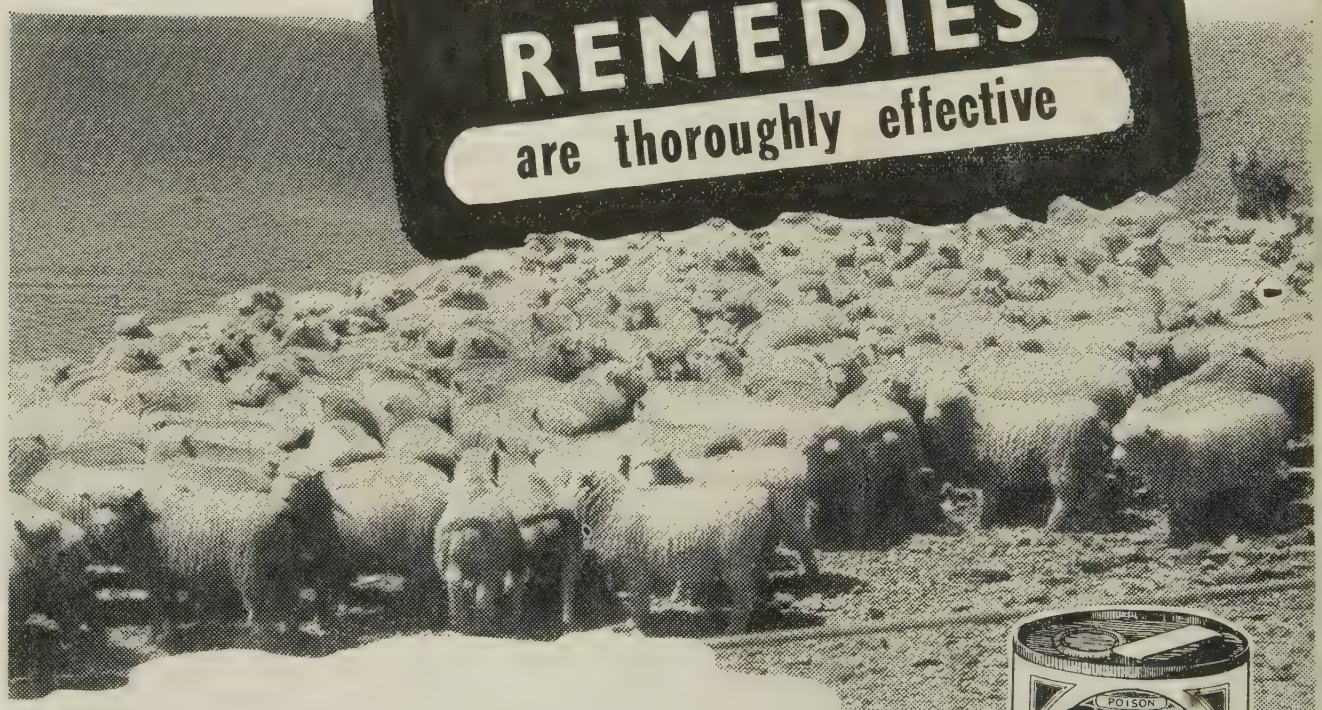
Shell beds being removed by a drag scoop.

Stripping turf from shell beds.

For the Economical Prevention of Foot-rot in Your Flock

COOPER'S FOOT ROT REMEDIES

are thoroughly effective



Foot-rot is a disease which has become exceedingly common and may cause considerable financial loss. On farms where it has previously occured preventive measures become a necessity. Cooper's Foot-Rot Liquid per medium of the footbath supplies an efficient method of controlling the disease both before and after it is known to exist on a property. Mixes instantly with cold water and does not make the hoof brittle. For individual treatment of affected sheep a hand-dressing of Cooper's Foot-Rot Ointment is invaluable.

Cooper's FOOT-ROT LIQUID and Cooper's FOOT-ROT OINTMENT

OBTAINABLE FROM YOUR MERCHANT

COOPER, McDOUGALL & ROBERTSON (N.Z.) LTD., Customs St. East, Auckland, C.I.

Veterinary Notes for the Farmer

Discussions on First-Aid Measures

Contributed by the Livestock Division

Coughing In Animals (Horses)

WHEN considering the significance of coughing in animals it is necessary to deal with each class of animal separately to obtain a true picture of the possible cause of the complaint. Coughing is a symptom which may affect all animals at one stage or other. It may be taken as evidence of worms in young animals, or as evidence of more serious diseased conditions in older animals. Its true value as an indication of the possible existence of disease in an animal must be gauged when the general appearance and condition of the affected animal is taken into full consideration.

Coughing in the horse may be taken as evidence of some irritation in the throat, windpipe, or chest cavity. In cases of strangles or influenza in horses, coughing is frequently an early symptom. The coughing in the early stages is frequently due to inflammation of the larynx, and is known as laryngitis, or sore throat. There is considerable difficulty in swallowing, and fluid may be returned through the nostrils. Frequently, there is some discharge from one or both nostrils. The discharge is thin and watery at first, but later becomes thick and purulent.

Treatment

If the irritation is confined to the throat, local treatment may be all that is required, but if the animal is affected with influenza or strangles, there is a general systemic upset and careful feeding and nursing will be necessary in addition to any local treatment decided upon. In influenza and strangles the affected animal will be completely off its feed. The temperature will be raised, and all the mucous membranes will be reddened and congested. Influenza is sometimes described as pink-eye because of the injected appearance of the eye membranes. If strangles is developing there is tenderness and swelling of the glands under the jaw and in the region of the throat. The discharge from the nose is marked in the case of strangles, and, later, abscesses form under the jaw.

In cases of influenza, swelling of the legs below the knee and hock frequently takes place, or even swellings on parts of the body, particularly about the sheath or along the abdomen. With this description of symptoms it should be possible to decide the type of disease one is dealing with, even though the first and main symptom started as a cough.

If satisfied that a simple pharyngitis or laryngitis exists, the treatment will consist mainly of local treatment to the throat and head. The best form of treatment will depend on the circumstances. The rubbing in of some embrocation to the throat and glands may be considered, or the application of antiphlogistic poultices, together with the administration of some cough medicine. Potassium chlorate made up into an electuary, or powder, with molasses is frequently used, the electuary being placed on the back of the tongue at regular intervals. On the other hand, 1oz. of potassium chlorate may be dissolved in the pail of drinking water.

PULPY KIDNEY VACCINE

(Entero-Toxaemia)

Orders for entero-toxaemia vaccine, made at the Commonwealth Serum Laboratories, Parkville, Victoria, are now being filled by the Animal Research Station, Wallaceville, where stocks are held for New Zealand requirements.

Farmers who are considering the vaccination of their ewes this season are requested to write at once for particulars and prices, if their order has not already been placed or put in hand. Mention the number of ewes to be vaccinated, and also the date lambing will commence.

Particulars and order forms are obtainable from any Inspector of Stock, the Department of Agriculture, or from the Superintendent, Animal Research Station, Private Bag to Wallaceville, Wellington.

Veterinary Aid

In all instances where strangles or influenza appear to be developing it is advisable to obtain the assistance of the veterinary surgeon. In these cases it will be necessary, in addition to local treatment, to maintain the strength of the animal by providing cover and shelter, together with sloppy, easily swallowed and easily digested food. Tonics and stimulants may be necessary, as well as surgical measures to deal with the abscesses in strangles cases. Isolation of the affected animal from all other horses on the farm is most important, as both influenza and strangles are highly contagious.

In the absence of veterinary assistance good nursing and feeding are the main essentials. Bran mashes or oaten meal drinks are frequently relished by sick horses. The addition of a tablespoonful of salt may induce thirst so that fluid or semi-solid foods may be taken more readily. Soft green feed may be relished when oats or chaff would be refused. Boiled carrots or swedes may form the basis of a mash for sick horses.

The drenching of medicine or even foodstuffs, such as milk and eggs or gruel, should not be undertaken in any case of throat or lung troubles except under veterinary supervision. It may do, and frequently does, more harm than good. Forced feeding in such cases is frequently overdone in an endeavour to maintain the strength of the affected animal.

Strict Cleanliness

All food not consumed at one meal should be removed, and strict cleanliness over the feeding should be maintained. All discharges should be frequently cleaned up and removed. If the affected horse is out in the open, shelter from prevailing winds, together with suitable covering, is necessary; otherwise a good loose box with plenty of fresh air should be provided. The fresh air treatment is important in all cases of throat trouble, where there is a possibility of complications affecting the lungs.

It must be remembered that coughing is frequently seen in horses affected with the well-known condition of broken wind. This is a chronic condition which gradually develops in some animals, and is due to a breakdown in the elastic texture of the lung itself. The condition is characterised by "heaves," or a double flank action. The disease is chronic, and should be easily distinguished from that of any of the previously described diseases. Frequently, affected horses on grass do not cough much and do not show any symptoms, but when these animals are put on to dry feed, such as chaff, the coughing and the flank action are much increased. The coughing becomes more marked when the animal is put to work.

There is no cure for this condition. The symptoms may be alleviated by avoiding all dusty chaff and by spraying even good chaff with molasses in water. If possible, green feed should form part of the daily ration for affected horses. No treatment can be recommended for the condition.

(To be continued.)

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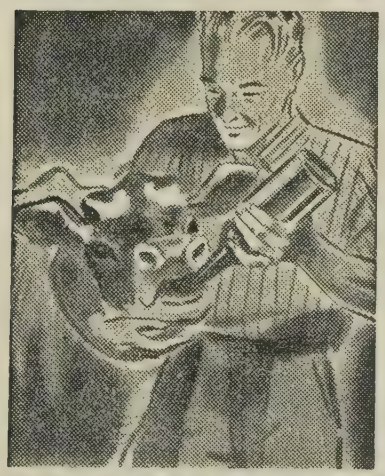

RED DRAUGHT

A medicine that has stood the test of 70 years. For bad cleansing, loss of cud, impure milk, indigestion, mawbound, costiveness and low condition.

ANTISEPTIC PESSARIES

Easily administered, Osmond's Antiseptic Pessaries disinfect the calf-bed and passage, and tend to avoid disastrous after-calving troubles.

OSMOND & Sons
NZ. LTD.
WELLINGTON.

Results of Long-term Plan To Eliminate Contagious Abortion from a Herd

THAT infection of a herd by contagious abortion (*bacillus Bang*) plays a large part in the causation of intractable forms of breeding trouble, as distinct from delayed conception, is evident when the disease processes set up and the mechanism of fertilisation and nutrition of the embryo are considered. Furthermore, experience bears out this contention. Farmers interested in this matter would do well to make themselves familiar with the details of the above-mentioned facts if only as a protection from "quacks" bent on selling alleged cures for a condition which to date is incurable in the individual animal and only allows of control in or elimination from a herd.

The known facts and the most satisfactory methods of control are described in a pamphlet issued by the Department of Agriculture, from which any further advice is obtainable.

The experiences of an owner who set out some years ago to bring the condition under control are of interest. The object in this case was the elimination of infection over a period of years.

In 1930 blood tests were taken of all cows and in-calf heifers to determine the state of infection. The farm was divided, and part of the area was reserved for the clean animals and the remainder for the infected ones. The shed and holding yards were divided in half, and a separate water supply provided for each side. Blood tests of clean cows and heifers have been carried out since then, at first once yearly, but during the last six years twice a year. It was realised that this entailed a very high degree of watchfulness on the part of the management, and a better method would have been the retention of the unaffected cows on one farm and the reactors on another, but this was not possible.

The difficulties involved are well illustrated by the following:—

Of 16 heifers tested in 1934, 9 reacted and 7 were negative.

Of 15 heifers tested in 1939, 1 reacted and 14 were negative.

One of the heifers on the clean side slipped, but was left because at the next blood test following immediately on the slip she was returned as negative. There may be a latent period between the actual abortion and the time at which a reaction is shown by the blood, and if the heifer had been retested within a month or so, not much harm would have been done; unfortunately she was left to the next general test seven or eight months later. The result was: Of 15 heifers tested in 1940, 5 reacted. Another difficulty was to prevent infection when the clean animals resumed a part of the farm grazed by the affected animals as these fell off in numbers.

Whatever the difficulties, the beneficial results on the breeding efficiency of the herd are undoubted. Figures taken at the start of the scheme and at intervening times later show:—

1930 of	24 negative cows,	2	were carried over empty,	No cows slipped.					
	41 positive „	7	„	„	„	„	6	„	„
1934 of	27 negative cows,	2	„	„	„	„	1	„	„
	39 positive „	7	„	„	„	„	5	„	„
1940 of	33 negative cows,	None	„	„	„	„	1	„	„
	24 positive „	9	„	„	„	„	7	„	„

Negative equals unaffected with contagious abortion. Positive equals affected with contagious abortion.

With regard to the occasional slip on the clean side, no difficulty is experienced in getting these animals into calf again, while on the infected side great trouble is experienced in this matter and some are permanently sterile.

HESKETT SLAG

Many soils of high-rainfall parts of New Zealand lack Lime, and contain large quantities of Iron and Allumina, which rob the farmer of about four-fifths of every ton of Water-Soluble Phosphates spread on these soils; a Basic Slag contains, among other minerals, large quantities of a non-acid chemical compound known as Calcium-Silico-Phosphate which, it is claimed, has the power of unlocking these dormant minerals from the soil. The phosphates of a Basic Slag cannot be locked up by these soils because they are already combined in a form easily digested by the root acids as they need them.

Made in New Zealand for New Zealand Soils.

Finely ground and packed 18 bags to the ton, it is delivered f.o.r. Huntly, Waikato. Obtainable from Merchants and Dairy Companies or from the Chief Distributors—

Arthur Yates & Co., Ltd.

Whangarei : AUCKLAND : New Plymouth

Answers to Correspondents

Trouble with Animals

"MAPUA" (NELSON):—

Please oblige by answering the following questions through the "Journal."

(1) Where can the 5 lb. bags cobalt salt mixture be obtained? They were mentioned in an article on "Licks" last year.

(2) How can cracks be repaired in old concrete tanks, dip, etc.?

(3) For a self-sucking cow, are rings in nose effective? I think three are used.

(4) Relates to a horse belonging to a neighbour which suffers with a skin complaint. When not working for some time he shows no sign of it, but after two hours' work in the collar, directly he gets a bit hot, little lumps come up around the shoulder and spread along the neck and back, and if he can get a tree to rub on, he does so until he makes himself very sore.

Sheep
Drenching
as recommended by farmers in all districts

PRODUCE FOR VICTORY

Mr. A. M. Carpenter, Southdown Stud Breeder, Fernside, Rangiora, a staunch GIESENS, SUTTONS, and KARTET drench user, is one of hundreds of users of Premier Products Drenches.

—proving that the correct Drench results in complete satisfaction and utmost economy —HEALTH FOR THE SHEEP —AND PROFIT FOR THE FARMER.

GIESEN'S, SUTTON'S, AND KARTET SHEEP DRENCHES are also thoroughly recommended. SUTTONS contains Nicotine - Bluestone, KARTET contains Carbon Tetrachloride, GIESENS contains Tetrachlorethylene. In obstinate cases, a combination of GIESENS and SUTTONS is a highly successful treatment.

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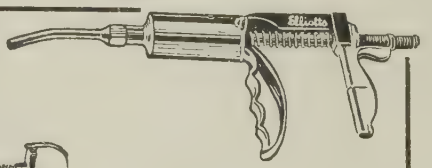
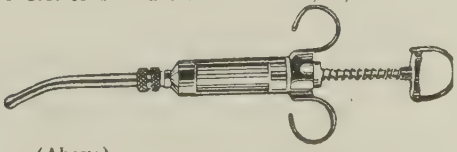
(On right)
ELLIOTTS DRENCHING PISTOL with safety flow nozzle and special everlasting rubber plungers. Dose range 5 C.C. to 1 fluid oz. .. £1/17/6





(Above)
ELLIOTTS SEMI-AUTOMATIC DOSING SYRINGE. Dose range 2½ C.C. to 10 C C. Recommended for administering Carbon Tetrachloride and Tetrachlorethylene Drenches .. £1/2/6

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SHEEP DRENCHES
PREMIER PRODUCTS LTD. HUDDART PARKER BLDG. WELLINGTON
N.Z. Manufacturers and Distributors.

LIVESTOCK DIVISION:—

(1) Cobaltised salt is obtainable from offices of Department of Agriculture at Wellington (District Office), Gisborne, Hastings, Hamilton (Ruakura), New Plymouth, Masterton, and Wairoa, at 2s per 5 lb. bag and 1s postage, cash with order.

(2) Repairing of cracks in old concrete tanks or dips may be difficult. It is suggested that if the interior surfaces be chipped with a short-handled pick or cold chisel for, say,

Advisory Service on Veterinary Matters.

Farmers are invited to submit inquiries connected with the health of their stock, and the replies will be published under this heading.

2 feet on each side of the crack and well clear of ends, and the surface well wetted and plastered with a good strong cement plaster, the leak may be checked.

(3) Rings in the nose are usually effective in checking self-sucking in the cow; use a good-sized bull ring in the nose and two more the same size or a little larger attached to it, one below the other. Another device is a halter with 3 inch spikes projecting through the nose band, which should be fairly broad.

(4) The condition in the horse may be a form of nettlerash. You might try thorough washing of the shoulder area with soap and water, followed by white lotion sufficiently long before horse is first worked after a spell to allow skin to dry. Repeat the white lotion after each working period. It is made by dissolving lead acetate 1 part, zinc sulphate ¾ part, and water 20 to 30 parts.

Trimming Cow's Feet

"JOE" (MURCHISON):—

Would you please advise me either by post or through the "Journal" if I can cut a cow's hooves in the same way as one would do a horse? One of my animals has grown very long hooves which overlap and have the general effect of causing the cow to hobble about. They also form a trap to germs, as this cow contracted foot-rot last season, and, now that she is

cured, I am anxious that the trouble should not recur.

LIVESTOCK DIVISION:—

The long hooves may be shortened in the same manner as a horse's foot by using a pair of blacksmith's cutters and then finishing off with a rasp.

It is advisable to rest the foot on a block of wood when shortening the toes, and care should be taken that only the extra growth of horn is removed.

Litters Born Dead

A.L.B. (HAWERA):—

I would be much obliged if you would give me the necessary information through the "Journal" concerning my sows. They have been running on a 10-acre grass paddock and have farrowed within the last month, and half, sometimes the whole of the litter, have been born dead. The sows were in good condition and apparently healthy. One had 11 pigs, five of which were dead; another had seven, all of which were dead, and the latest sow to farrow had 11, five dead. If you could advise me any way on this matter I would be very gratified.

LIVESTOCK DIVISION:—

There is no doubt that the great majority of such cases with some or all of the farrow born dead is due to defective feeding of the sow before farrowing. This period includes the total period from weaning previous litter.

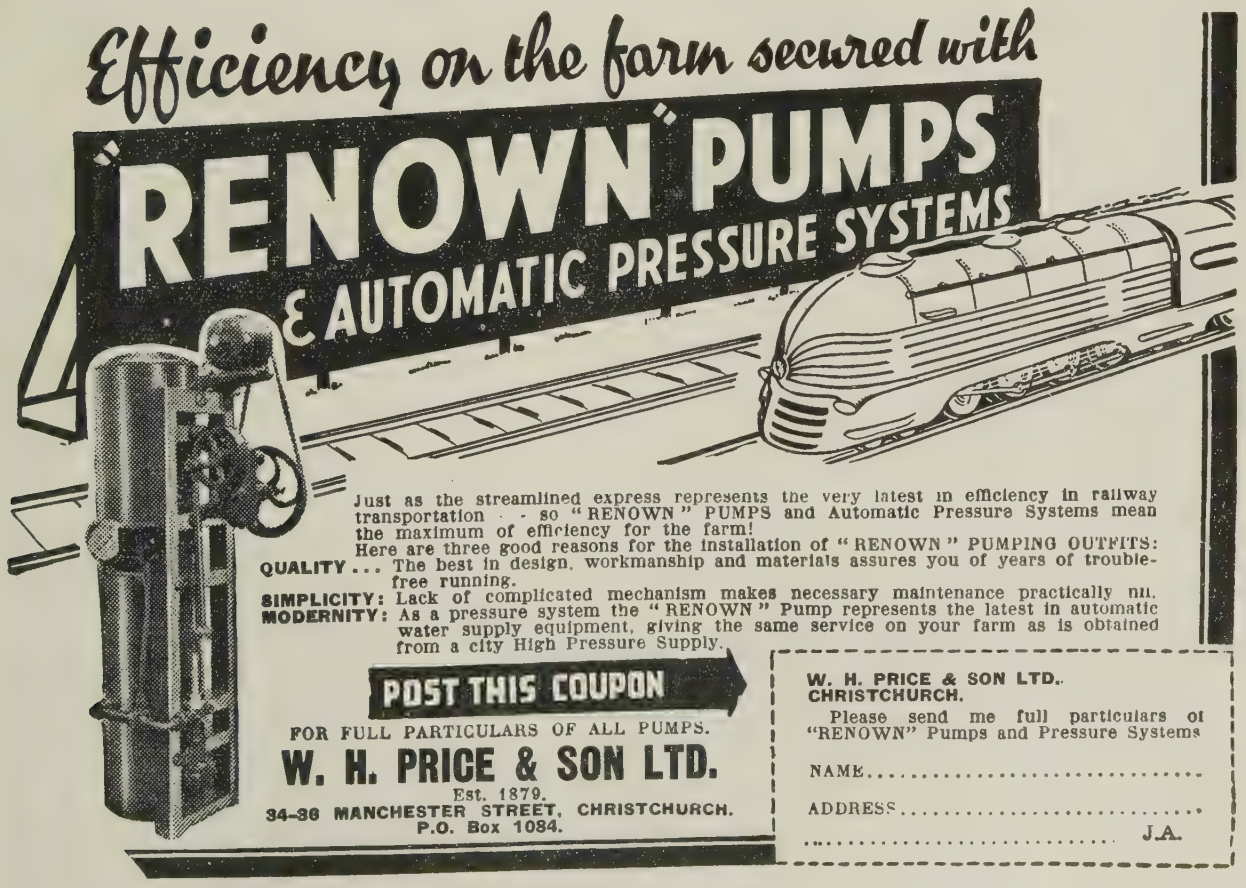
A recent experiment quoted by Doyle, Veterinarian at Indiana Agricultural Experimental Station, showed that where sows were fed a good quality animal protein during gestation, the deaths within first week were 11 per cent.; when only grain and minerals were fed it was 44 per cent.

One has seen similar occurrences where pregnant sows had run on dry pasture during pregnancy. In a few instances the mortality may be due to mineral deficiency alone—usually deficiency of phosphate.

In your case you say sows were on pasture. This in itself is not sufficient to supply the complete requirements of the sow while she has to provide for the needs of the unborn litter. Towards the end of pregnancy these are heavy and diverse.

The feeding of pregnant sows was well dealt with in an article by C. E. Ballinger, Research Officer, in Animal Nutrition in this "Journal" for May, 1940, which is well worth your study. The indication there was that good feeding during the first six weeks of pregnancy was probably the most satisfactory and economical method. It would, of course, be a mistake to bring the sow in just a week before farrowing and stuff her with concentrates, as this would do more harm than good.

I should suggest that in future you adopt a system of feeding the sows with concentrate after weaning until they regain condition. What quantities of concentrate are fed and how long during pregnancy the feeding is continued would depend on the amount of pasture or other food available. The concentrate should undoubtedly include a good percentage of meat-meal. A protein (meat-meal) supplement would also be very necessary where winter farrowing sows had roots as a main part of their pre-farrowing feed.



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Facts

YOU SHOULD KNOW ABOUT NATIONAL SAVINGS ACCOUNTS

1. You can open a National Savings Account at any Post Office or Trustee Savings Bank, with the sum of one shilling or more.
2. All money invested is used solely for New Zealand's war effort.
3. Interest, which commences when £1 is invested, is 3 per cent. per annum.
4. Interest will be credited after 30th June each year.
5. Repayment will be made on 30th June, 1945, or earlier at discretion of the Minister of Finance in case of hardship, emergency, or special circumstances.

THE greatest service you can do your children is to open for them a National Savings Account—**and add to it regularly.** Build up a "nest-egg" for their future—for education, for a start in life. But, more—**assure them a future.** To-day we must all face this fact . . . unless we win this war, all we hold dear will go under the heel of Nazi oppression. But we **will** win—if everyone pulls their weight. **Your** help is urgently wanted **now.** Your help in providing the essential sinews of war to carry the British Empire on to Victory. Add to your National Savings Account **every week.** Search your pockets! Search your conscience! How much **more** can you save this week to lend to the country? Every shilling you can spare is needed.

SAVE FOR THE FUTURE - ASSURE THE FUTURE

Add to your NATIONAL SAVINGS ACCOUNT every week

Farm Practice and Management

Contributed by Officers of the Fields Division

Live Fencing Posts

A fence with poplar posts.

GOOD, serviceable fences are essential on every farm, and as a great deal of money and time are invested in this section of the farm, farmers will be interested in this method of reducing the repair bill. Good fences facilitate better grazing, and this in turn makes for better management and a great saving of time in the handling of stock.

On many farms all material except the wire was already on the property when the fences were first built, and apart from the cost of cutting, splitting or trimming posts, battens, and stays, no other cost was entailed. Today, however, even on many bush farms, good fencing timber is very scarce, and the cost of timber from other districts is more than most farmers can pay.

Close-up showing the bark of a poplar starting to grow around a batten. This batten has been attached to the tree for seven years.

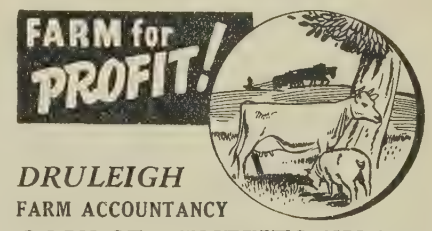
To overcome the cost of replacing posts, some farmers in the Taumarunui district have converted their old post-and-wire fences into fences with trees instead of posts. This practice is old and has been tried many times before, but has been discarded because of the wire becoming buried in the bark.

To overcome this objection it is necessary either to strain the wire out of the bark every two or three years, or, better still, to attach battens to the trees and staple the wires to the battens. It has been found that by using this method it takes about 15 years before the batten becomes buried in the bark, and, as by that time most fences need new battens or at least straining and restapling, no extra labour is involved.

Lombardy poplar (*Populus fastigata*) is useful for this purpose, and, if the trees are topped every 15 years, the tops will supply sufficient battens to repair the fences. Other trees which are used for this purpose are willows and sometime pussy willows.

Farmers who are using this method of fencing would be wise not to plant pussy willow posts in swampy ground or seepages, for under these conditions this tree sends out numerous root suckers in all directions. These suckers have been known to take control of swamps, and it is practically impossible to control or eradicate them.

—W. T. BROWN, Fields Instructor, Taumarunui.



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Dear Sirs,—Please send me, without obligation, full details of your simplified Farm Accountancy Course.

NAME .....

ADDRESS J.A.4

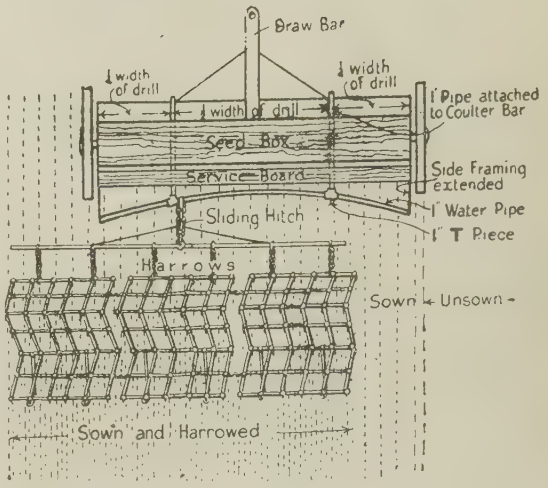
Making a Drill and Harrow Combine

DETAILS of how to make a drill and harrow combine are given by a correspondent in the "Farmer and Stock-breeder," England.

Corn drilling being now in full swing, it may be of interest to suggest a way of harrowing behind the tractor drill in one operation which may interest your readers, he writes.

A pair of harrows hitched centrally to the back of drill either obliterates the wheel track or fails to cover the coulter tracks. A method I have used successfully for several seasons is to extend the main frame from each wheel axle in a backward and downward direction by providing a suitable angle iron.

Its position provides rests for a 9 in. wide service board right across the drill. To the end of these rests, which should extend about 6 in. behind the wheels, secure with ½ in. bolts a 1 in. water pipe provided with T pieces and bent, as the accompanying sketch shows, with T pieces in position. Screw into the T's two more lengths flattened one end each. Then bolt to flat ends the front coulter bar.



In operation, the harrows hitch works in the space between the T's. When going through the field with the sown portion to the left side, the harrows will be covering the corn and wheel track to the left of drill. When turning to the right on the headland for the return journey, the harrow hitch slides over to the right. It then covers the corn and wheel track on the right, as the sown part of the field is now on the right. When the job is finished all wheel tracks and coulter marks are obliterated.

Challenge SUPER
AERATED
increases production
... increases profits
MANUFACTURED BY CHALLENGE PHOSPHATE CO. LTD., AUCKLAND

Strawberry Clover for Wet or Saline Soils

UNDER very wet or saline conditions white clover does not thrive. Desirable as it may be in every good dairying pasture, it is quite impossible to get it established under the above conditions.

Vigorous growth of strawberry clover on a waterlogged area.

Fortunately, however, it is in such places that no difficulty is experienced in getting strawberry clover to flourish, and in a field of varying soil conditions pure associations of each with various degrees of merging of the species will be noted according to these soil conditions.

Strawberry clover is a vigorous grower, an excellent companion plant for the better grasses, and will tolerate wide variations of soil moisture ranging from temporary submerging and waterlogging to considerable drying out in the summer.

It certainly has an important place on all reclaimed tidal areas or old marine plains where salinity or soil moisture content is at times too high for white clover to flourish.

—C. WALKER, Instructor in Agriculture, Thames.

An Effective Gate-shutter

ON many farms the problem of maintaining gates in a closed position to restrict the movement of stock to certain intended areas is not always easy, especially where many men are employed and much of their work is done on horse-back.

This difficulty has been overcome by the manager of one large holding in the Whakatane district with the assistance of the ingenious device illustrated in the accompanying photograph. It is simple and inexpensive to construct, and is most effective in operation.

The photograph is self-explanatory, apart from the fact that the gate must be equipped with an automatic locking attachment rather than one of a hand-manipulated type. The gate shutter will definitely do the rest.

—C. R. TAYLOR, Fields Instructor, Whakatane.

New Conditions for Supplying Milk or Cream

NEW provisions governing the supply of milk or cream to creameries and cheese factories are made under the Dairy Supply Control Order, 1941, which revokes the Dairy Supply Control Order, 1940.

Under the previous Order a continuous obligation was imposed on the occupier of a dairy farm and his successors in occupation to carry on the same type of farming, and to supply milk or cream produced on the farm to the same dairy factory as that to which the supply was delivered during the 1939-40 season. It was permissible, however, for a supplier to a creamery to transfer his supply to a cheese fac-

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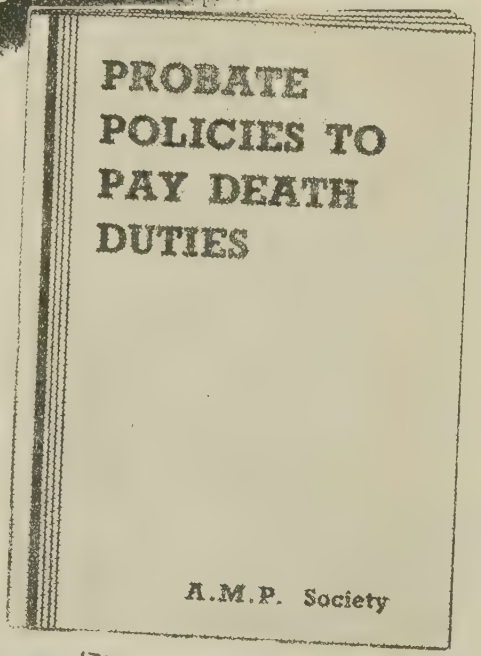

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tory, but if the occupier for the time being of a dairy farm desired to—

(a) Make a substantial reduction in the number of his milking herd, or

(b) Use the land for any purpose other than dairying, or

(c) Transfer his supply from a cheese factory, or, in certain cases, from a creamery to another creamery, it was necessary to obtain permission so to do from the Director or Assistant Director of the Dairy Division of the Department of Agriculture in the case of suppliers to a cheese factory, or from the Deputy Chairman of the Executive Commission of Agriculture in the case of suppliers to a creamery.

These restrictions are removed by the Dairy Supply Control Order, 1941, but the new Order provides that, so long as dairying is being carried on on any farm and milk or cream is disposed of from the farm, the person for the time being in occupation of the farm must deliver all milk or cream disposed of from the farm to the cheese factory or the creamery, as the case may be, to which the supply was delivered during the 1940-41 season. The fact that the same premises are being used as both a creamery and a cheese factory does not enable a supplier to deliver either milk or cream from his farm as he thinks fit. He must deliver the supply from his farm in the same form as that in which it was delivered during the 1940-41 season. An occupier who during the 1940-41 season disposed of milk or cream from his farm to a creamery is at liberty, however to divert his supply to a cheese factory.

—A. E. MORRISON, Solicitor, Department of Agriculture.

Broadcasts to Farmers

THE following radio talks to farmers will be broadcast from 1YA Auckland at 7.15 p.m.:—

May 19.—"Winter Management of the Laying Hen": S. G. Haddon, Poultry Instructor, Auckland.

May 26.—Address to Young Farmers' Club Members: S. Freeman, Organising Secretary, Y.F.C. Federation.

June 9.—"Farm Drainage" P. S. Syme, Instructor in Agriculture, Warkworth.

June 16.—"Distemper in Dogs": H. W. Carbury, M.R.C.V.S., Dept. of Agriculture, Auckland.

The Orchard and Vineyard

Contributed by the Horticulture Division

Orchard Notes

Preparations for Next Season

BY the time these notes appear, the harvesting of the 1941 fruit crop will almost have been completed. The gathering of the late varieties is often more difficult and tedious because of unfavourable weather conditions and shorter days. As some of these late varieties are usually expected to provide the fruit for consumption late in the year, every care should be exercised in picking, handling, and packing, for damaged fruit is not suitable for long storage either in cool store or under ordinary storage conditions. In order to provide a reasonable quantity of suitable fruit later in the season, certain preferred sizes should be selected and packed carefully for the purpose. The most suitable sizes are counts of 138 to 198; the larger and smaller sizes are not so acceptable.

After the Harvesting

After the harvesting period the attention of growers is usually focused on arranging and preparing for the following season and the order in which the work should be undertaken. Now is the time to review the past and decide whether any radical improvements can be made in the following directions:—

1. Whether ploughing is necessary or whether the method followed in the past has been satisfactory.

2. In arranging for replacements or new plantings (have the trees been satisfactory?)

3. Has the pruning of the orchard been satisfactory both in regard to method and time?

Ploughing, which has been mentioned in previous notes, is not considered necessary in some quarters with the advent of the rotary hoe, but there is always a danger of an accumulation of water where only the rotary hoe is used; therefore, consider this matter very carefully and act accordingly.

Three types of well-grown apple trees, yearling rods, two-year trees and three-year-old.

Sufficient consideration has not always been given to replacements and new plantings, and the following statement summarises briefly the reason for so many unsatisfactory trees in some orchards:—

"Many a person intensely practical in his own business will give his order to the lowest bidder among competing nurserymen and waste years looking at sickly, struggling trees in his orchard rather than invest a little more money and get satisfaction and joy from the start. Poor nursery stock is dear at any price."

One of the principal factors in raising strong, healthy fruit trees is the stock. What is a stock? A stock is an easily-grown form of fruit tree on which improved varieties are grafted or budded. Thus, in every fruit tree you have the trunk and branches of the variety you want growing on a root (or stock) of another variety.

Reasons for Using Stocks

New stocks are used because it is the easiest way of raising a quantity of any one variety. If you have a bunch of stocks, they can be budded or grafted with any variety desired. If you are a keen horticulturist and desire to become a successful fruitgrower, take an interest in the work of a reliable nurseryman and take note of the following points:—

1. The class and quality of stocks upon which he is working his trees.

2. The class and type of tree from which he obtains his wood for grafting and budding.

3. The general manner in which he attends to all matters relative to the nursery.

Remember, also, that successful fruitgrowing is so closely linked up and associated with the nursery that it is impossible to separate the two. If the nursery is poor, the orchard is also likely to be poor, and if the foundation is weak it is not reasonable to expect the structure to be sound.

Fruitgrowing is becoming more highly scientific each year; therefore try and keep abreast of the times and investigate every avenue that will enable you to become more efficient. Only an outline can be given of what will lead to success; the remainder can be obtained free from reliable Departmental officers.

Planting New Orchards

Give mature consideration to the planting of new orchards, and proceed along the following lines:—

(a) Provide adequate shelter to protect the young trees.

(b) Prepare the soil thoroughly.

(c) Select those varieties most suitable for the locality, soil conditions, market requirements, and length of the harvesting period.

(d) Last, but not least, do not crowd trees when planting.

The following table shows the number of trees per acre from 10 feet up to 30 feet when planted on the square system:—

No. of Ft. Between Trees.	No. of Trees.	No. of Ft. Between Trees.	No. of Trees.
10ft.	435	22ft.	90
12ft.	302	24ft.	75
14ft.	222	26ft.	64
16ft.	170	28ft.	59
18ft.	134	30ft.	48
20ft.	109		

The minimum standard distance for planting apples and pears should not be less than 18 feet, with 134 per acre; in some soils it would be preferable to plant 20 feet, with 109 per acre. Stone fruits should be planted 20 feet or even more, depending largely upon the class of soil. The distances mentioned may at first appear unreasonable, but as the trees begin to develop the room is needed for successfully carrying out all cultural, spraying, and harvesting operations. Moreover, a reasonably free circulation of air is needed at all times, and if the trees are crowded this is scarcely possible.

Pruning

Pruning should be started in June and pushed forward reasonably early. In some quarters it has been the practice to delay the work. This is not advisable, as broken weather will always further delay the work, and it is often not completed until September. Pruning can be carried out on apples until very late, but it is not good orchard practice, as other work is then in season. Therefore, begin early and plod along until completed.

A few points worthy of note are:—

1. Have a good pair of secateurs and one of the up-to-date pruning saws.

2. Have a light ladder for reaching the higher portion of the larger trees.

3. Do not shorten the young growth of peaches and nectarines more than is necessary; rather, pay attention to adequate thinning and spacing both leaders and laterals.

4. Remove all dead wood and any wood of a weakly nature and immature and also strong water shoots if there are any.

5. Make all cuts clean, and pare neatly with a sharp knife any large wounds made with the saw and cover with a bitumastic paint.

6. Gather up and burn all prunings, as this is a part of good orchard practice.

Orchard Hygiene

Orchard hygiene plays an important part in good orchard practice, and attention should be given to this work. Burn up all orchard prunings, and destroy any decaying and diseased fruit. An accumulation of either is not only unsightly, but is likely to be a source of further contamination the following season.

—L. PAYNTER, District Supervisor, Auckland.

Citrus Notes

Citrus Bud Selection

REFERENCE was made in last month's notes in the "Journal" to the necessity when planting citrus trees to plant only the best. The choice of such trees depends upon the variety and the root-stock, but these two factors are themselves greatly influenced by the care with which the propagating budwood has been selected and the relative vigour of the rootstock at time of budding. In order to co-ordinate previous efforts and to improve the existing position in New Zealand, the co-operation of every grower and nurseryman is desired in the efforts being made by the Citus Bud Selection Committee to locate trees of outstanding quality from which budwood can later be cut for propagating purposes.

In the past the reproduction of citrus trees has been done by seed, cuttings, layering, budding, and grafting. Today, the standard method is by budding, a system of vegetative reproduction by which the young citrus tree retains the characteristics of the tree from which the original bud was taken. This bud is inserted into one of the standard root-stocks for citrus trees, namely the sweet orange (*Citrus sinensis*), the rough lemon or *Citronelle* (*Citrus limonia*), the trifoliate orange (*Poncirus triifoliata*), etc. Although

A five-year-old Ruby Blood orange tree on *Poncirus trifoliata* stock, H. R. Wright's nursery, Avondale, Auckland.

root-stock and general environmental factors have a considerable influence on the development of the young citrus tree, trees planted out on the same root-stock and within the same environment differ widely. In every commercial citrus orchard today there are all qualities of trees both in vigour of growth and in the quality and quantity of fruit produced per tree. This difference is largely due to the original buds from which trees were propagated.

No farmer would endeavour to build a pedigree herd by the purchase of stock at random in a saleyard. He would look for the characteristics he desired in his herd and choose his stock accordingly. If he were in error in his judgment, by breeding from superior sires he is able to make vast improvements in a comparatively short time. The citrus grower has, in the past, paid too little attention to his original trees, and when, by experience, he learns his mistakes he may have spent many years of hard, conscientious work on inferior trees. Not only should root-stock seedlings be severely culled, retaining only the strongest, but also the best available citrus buds should be budded on to those root-stocks.

The work of finding the best buds available is known as citrus bud selection. Generally, citrus trees have been propagated from the best available material, but the individual person who was propagating the trees

has been limited in his choice by limited knowledge of trees available. Formerly buds were selected from one variety, and later concentration moved to the strain within the variety, whereas today buds should be selected from the best trees or best portions of trees of a superior strain of a variety.

Citrus bud selection work has been carried out in other parts of the world, and the work of A. D. Shamel and his co-workers in the United States is well known. Similar work has been going on in New South Wales, and the necessity for such bud selection has been recognised in New Zealand for some years. In order to put citrus bud selection on a sound basis and to co-ordinate past work, it is suggested that each individual grower become an observer and report to the local Orchard Instructor and Citrus Growers' Committee for the locality trees of outstanding merit for quality and quantity in the orchard.

Having selected the outstanding trees, it is proposed that fruits be assembled and exhibited locally from these trees and then forwarded to the Central Bud Selection Committee for its selection and comments. All selected trees would be marked and a cropping record for the next three years obtained. At the end of this period there will be some reliable data in each district. No buds are to be cut before the end of the three-year trial period.

When definite proved trees have been secured after the trial period, it is proposed to arrange for securing buds and supply nurserymen with them on conditions to be agreed upon, and also to plant out bud-selected trees and encourage intending planters to inquire for trees, using such tested and selected buds.

Do you know that New Zealand still imports more than 500,000 cases of citrus fruits annually? Is this necessary? We have good quality local grapefruit and lemons, and are searching for a suitable variety of local sweet orange and mandarin. Do you realise that every sweet orange growing country had to evolve its own particular varieties suitable for local conditions, and that the industry became established only when such variety was discovered? What is that variety going to be in New Zealand? Are you going to assist this work of finding the most suitable variety and improving our lemons and New Zealand grapefruit by careful bud selection?

—A. M. W. GREIG, Citriculturist, Auckland.

Viticulture

Points in Making Cider

Special Ciders and Their Making.

Dry Cider

THE simplest cider to make is that known as dry cider. This is allowed to continue fermenting until the fermentation ceases naturally. The dry or hard ciders are, as a rule, not appreciated by the general public, although preferred in cider-making districts. A little sugar added before drinking it makes the cider more agreeable to those consumers who do not care for it dry. It is preferable to bottle the cider before it becomes absolutely dry. It is not possible to give a fixed degree at which to bottle, as the degree will vary according to the original sugar-content and consequent alcohol produced. As alcohol is lighter than water, more or less of it in proportion to the water content of the cider will affect the hydrometer accordingly.

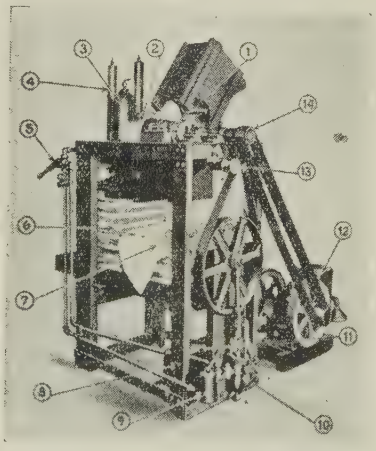
Sparkling Cider

Sparkling cider requires either from six weeks at a temperature of 55 degrees Fahrenheit or two months or more maturing in the bottle at a temperature of 40 degrees Fahrenheit to develop the effervescence, and it is advisable to leave it at least another month in the cellar to mature. No exact period can be given for the maturing of cider; this varies with its composition and the conditions under which it is fermented and matured. Generally speaking, cider is sufficiently matured for consumption in about 12 months from the time of extracting the juice, although it will improve considerably if kept for a longer period under suitable conditions.

When thoroughly matured, the cider should be clear and bright, sparkling in the glass, should have a pleasant flavour and bouquet, should be invigorating but not intoxicating in

AN ORCHARD TYPE COMBINED MILL AND PRESS.

1. High speed, steel-knived grater.
2. Heavy balance wheel on grater shaft.
3. Cast-steel press cylinder with downward moving ram.
4. Enclosed springs for returning ram and platen.
5. Valve to control press ram movements.
6. Built up "cheese" of pomace in cloth-wrapped layers between wood racks insures free drainage under hydraulic pressure.
7. Second "cheese" being built up as apples are ground.
8. Rigid all-steel press frame.
9. Weighted pressure control valve.
10. Hydraulic pump which develops the operating pressure.
11. Reservoir for the entire supply of operating fluid—about two gallons of water or oil.
12. Any 1½ horse-power engine or motor operates this press through a single drive belt; these items not included with the outfit.
13. Idler pulley for adjusting tension of pump drive belt, which is included with the press.
14. Pulley for driving both grater and pump.



effect, and should leave an agreeable after-taste on the palate.

The effervescence produced by secondary fermentation in the bottle will continue for a long time in the glass after the cider is poured out. This, added to its superior flavour and bouquet, distinguishes it from the sparkling cider produced by pasteurisation and artificial carbonisation. Large quantities of artificially carbonated cider are produced in England and Germany, and the best of it makes an excellent beverage. When made on a large scale, it can be produced quicker and at less cost than the sparking cider, in which the effervescence is produced by secondary fermentation.

Champagne Cider

The production of champagne cider which, when well made, is very similar to real champagne, is rather costly, as it necessitates more handling and considerable material. It can be made by exactly the same process as for champagne wine, utilising matured cider from the previous year and adding a sugared liqueur, clarifying-medium, and wine-yeast. A simpler method is to bottle the cider in the same year that it is made (as in the making of sparkling cider) at 2.5 degrees Baume, using cider which registered at least 8 degrees Baume when in the state of unfermented juice, and containing about 0.3 per cent. of malic acid at the time of bottling.

Temporary corks are placed in bottles and held in place with special clamps. The bottles are then laid on their side in the cellar to develop the necessary gas by secondary fermentation, which usually requires from six weeks to two months. The bottles are then shaken and placed neck downwards in special stands, where they are given a sharp turn every day until all the sediment falls on the cork. The exact moment for placing the bottles on the stand can be judged by an experienced maker from the state of the line of deposit on the bottom side of the bottle.

When the sediment is well settled on the cork the bottles are taken from the stand, holding the neck down, the cork is smartly withdrawn, and the neck is brought quickly into an upright position. The sediment is then thrown out by the escaping gas into a barrel prepared for the purpose, or the sediment is frozen on to the corks by placing the necks of the bottles in a freezing liquid, and withdrawing the frozen sediment with the cork. In both these operations there is a slight loss of cider, which is replaced by a liqueur prepared by mixing some cider with certain proportions of sugar, alcohol, and citric acid. The bottles are then permanently corked and wired.

Light Ciders

A sweet, light, effervescent or still ciders of low alcoholic content can be prepared from partly fermented cider by passing it through a germ-proof filter or through a centrifugal separator with the object of stopping fermentation by extracting the ferments. The cider is then bottled as a still cider, or rendered effervescent by carbonating.

Light ciders for home use can be made from the apple pomace which has been already pressed once by breaking up the pomace and repressing and fermenting alone, or it may be reinforced by fresh juice from the first pressing. The pomace is placed in a barrel with one end taken out, and the top covered with calico to exclude dust, etc. The pomace is left to soak for about 12 hours, then repressed, and the juice fermented alone or added to the pure juice of the first pressing. The saccharine contents of the second juice will naturally vary with the greater or lesser pressure to which the pomace was subjected in the first place.

To facilitate the rapid fermentation of light ciders for home consumption the fermentation vessel can be placed in a warm shed, and 1½oz. of ammonium phosphate added to each barrel of 42 gallons. The phosphate supplies extra food for the ferments, invigorates them, and assists in their rapid propagation. It is consumed in the process, and leaves no disagreeable after-effect. In a couple of months' time, and after racking once or twice, the cider will be ready for consumption. Either pure or diluted juice can be treated in this manner.

In several of the cider-producing countries large quantities of cider are consumed as soon as the first or tumultuous period of the fermentation is over. It has a pleasant, sharp, fruity flavour in this state, contains 1½ to 2 per cent. of alcohol, and makes an excellent beverage in hot weather.

—B. W. LINDEMAN, Vine and Wine Instructor, Auckland.

(To be continued.)

Cool Storage Notes

Stock-taking of Lines in Storage

A STOCK-TAKING of all lines of mid-season varieties of pears and apples held in cool storage will now be essential in order that these varieties may be released in time to refill the space with varieties which can be held in storage for a longer period.

Pears, in particular, will require a careful inspection from now on until their release from storage. Pears received for cool storage immediately after harvesting in a green, firm condition can be safely held for the full length of their cool storage life. By special attention to temperature and humidity treatment, as shown on the pear temperature chart, firm green fruit can be removed from cool storage when required and brought to a state of maturity that will be beneficial for marketing and distribution. Handling the pear crop in this way will help to prevent losses from deterioration during cool storage and immediately after removal.

Some lines of Winter Cole pears may contain a percentage of fruits which, because of an advanced state of maturity, cannot be held for any longer. The immediate removal of faulty lines will make space available for the storage of some of the later varieties of apples which have a low temperature tolerance. This procedure should also be adopted with the later picking of Winter Nelis and other varieties of pears. The above recommendations, if carried out, will assist in avoiding repacking charges and losses from deterioration.

Jonathan apples held in cool storage are subject to the development of flesh collapse and soft scald during the next five or six weeks. A regular inspection of all lines of Jonathans will be necessary in order that this variety may be released in time to avoid repacking and loss. A regular inspection of all stocks now being held will also reveal the early tendencies of the fruit to develop bitter pit or internal browning. This knowledge will materially assist the officers who are responsible for the distribution and sale of fruit.

The blowing out or ventilating of fruit cool storage chambers at regular intervals twice weekly should be carried out during the remainder of the year. This is very necessary when the store has been filled with fruit, as accidental ventilation which occurs when the cool chamber doors are frequently being opened for receiving and delivering fruit is no longer taking place. The best time to ventilate is early in the morning before starting the refrigerating plant.

—A. POWELL, Cool Storage Officer, Wellington.

The Home Garden

Vegetables, Small Fruits and Flowers

Potatoes For Early Planting

The woman who has to make a penny do the work of a shilling would starve if she couldn't rely on potatoes. For potatoes, being among the fuel foods which provide the body with heat and energy, are one of the cheapest articles of food. Containing mineral salts and vitamins in their composition, they help to keep the body machinery in good working order, so you must not neglect them."

—ELIZABETH CRAIG, M.C.A., M.I.H., F.R.H.S.

THE best soil for potatoes is a medium, friable loam, well drained, and containing an abundance of humus, but the home gardener has to make the best of the soil in his garden—whatever that may be. The part of the garden in which it is intended to plant the early crop of potatoes should now be dug and left in a rough state for exposure to the winter frosts and rains. Badly-drained land is quite unsuitable for potato production, particularly for an early crop, as it takes too long to become warm in spring because of its abnormal water content.

Those who intend to prepare a piece of the garden for a lawn could not do better than plant it to potatoes. If it happens to be carrying a green crop, and this is dug in, subsequent winter rain will accelerate its decay, which will result in the formation of humus—a valuable and indispensable soil constituent if good potato crops are aimed at.

Variety

If intensive gardening is to be carried on and another crop is to follow the potatoes, it is essential that an early-maturing variety should be planted. Without detracting from the probable virtues of other varieties, "Epicure" can be specially recommended. Here is what a variety descriptive bulletin published by the Department of Agriculture says concerning Epicure: "The most important first early in New Zealand on account of its good cropping and general hardiness. . . . Should always be dug early because, when left to mature, the tubers are very susceptible to brown fleck (rust)."

The Seed

It cannot be too strongly emphasised that every effort should be made to secure **Government-certified mother seed.** Figures recently published in a report of the weight per acre of potatoes produced compared with "mother" seed are as follows:—

	Tons per acre.
Government-certified mother seed	14.3
Seed once grown from certified seed	11.6
Seed twice grown from certified seed	10.1
Seed three times grown from certified seed	10.1
Uncertified seed	7.6

This surely is convincing evidence of the value of making certain that only Government-certified mother seed is planted.

Sprouting the Seed

Whole potatoes are best for early planting, and tubers of uniform size and a good shape should be chosen and placed in seedling boxes "eyes up." The boxes should be kept in a dry, well-lighted, and well-ventilated shed or out-house. If stored in a dark corner, weak spindly shoots will develop, which will not produce healthy, vigorous plants of high productivity.

Planting

The land should be again turned over before planting, but need not be worked down to seed-bed condition. When it has been finally prepared and roughly raked level, lines should be drawn 2ft. apart, and, along those lines, V-shaped furrows formed with a garden hoe, usually known as the "swan-neck" hoe. This is done by dragging the hoe along the marks with one corner pressed firmly down into the soil.

Mixed fertiliser composed of three parts (by weight) of superphosphate and one part (by weight) of sulphate of ammonia should be distributed along the furrows at the rate of ½lb. to each 6ft. of row. The seed can now be planted 3in. to 4in. deep and about 14in. apart in the row. Planting dates vary according to locality, but the danger of late frosts must always be considered before setting out the seed. Nothing is gained by early planting and then having the plants cut down by frost.

Cultivation

As soon as the tubers begin to shoot above ground, hoeing must be started, and cultivation should be regular so that the plants may be kept free from weeds and the soil in a friable condition. During dry weather regular cultivation will assist in the retention of moisture in the soil. As the plants grow, more soil should be brought up to them with each hoeing. This will prevent the young tubers from being exposed to daylight, with consequent greening, which would render them unfit for human consumption. Final hoeing should be at flowering stage, when all available soil between the rows should be dragged up as high as it will stay. By commercial gardeners this operation is termed "banking."

Care of the Plants

Like most other crops, potatoes are subject to attacks by insect pests and fungoid diseases, and must be protected. Irish blight (*Phytophthora infestans*) is generally considered to be the most destructive of the diseases to which the potato is subject. This fungoid disease is easily recognised by the appearance on the leaves of dark brown spots, which gradually enlarge, merging into one another and finally becoming large black patches. Further development of the disease affects the whole plant, and, if not checked, will ultimately reach the tubers and result in the loss of the crop.

What To Do In The Garden Next Month

Summary of Operations during June

VEGETABLE SECTION.

SEEDLINGS TO TRANSPLANT AND PLANTS TO SET.

Seedling should not be planted out this month.

Shallots may be planted, but better results can be obtained by planting in July.

Plant early potatoes in frost-free districts if the condition of the soil is suitable.

PERENNIAL CROPS.

Rhubarb crowns are better planted in July or early August, and asparagus plants in August and September.

CROPS IN SEASON.

Greens.—Brussels sprouts (September); cauliflower, winter cabbage, savoy cabbage, borecole (early November); silver beet (October); spinach (February).
Salads.—Endive (February, March); celery (September).

Roots in the ground.—Artichokes (September, tubers); beetroot and carrots (February-March, in warm districts); celeriac (September); leeks (October); parsnips (October and December); salsify (October); turnips (March, April); swedes (November in cooler localities, January in warmer).

CROPS IN STORE.

Beetroot, carrots, kumaras, onions, potatoes, pumpkins, shallots.

GENERAL WORK.

Dig light land, if its condition is suitable, in preparation for planting in warm districts.

Clean, repair and sharpen garden tools.

Place order for seed and manure.

SMALL FRUITS SECTION.

Small fruits planted last month will be satisfactory, but it is advisable not to undertake further planting until July.

Attend to the pruning of bushes.

FLOWER SECTION.

Order shrubs and seeds.

The pruning of early-spring flowering shrubs should be delayed until after their blooming period is past.

Others which bloom on new growths may be pruned now. With roses, in cold localities pruning should be delayed until the end of August. Pruning generally starts the bushes into new growth, and if done before the severity of the winter is past there is the liability of loss of the buds by frost injury.

The planting of hardy deciduous shrubs and trees may be undertaken. Evergreens and tender shrubs and those deciduous subjects which do not transplant readily are better planted in August and September.

GLASSHOUSE SECTION.

Dig under the cover crop four to six weeks before a crop is to be planted.

Flood the house two to three weeks before planting, and leave it undisturbed for the surplus water to drain away.

Toward the end of the month plant out tomato seedlings in the heated house.

In order to protect the plants against attacks of blight, they should, after attaining a height of 7in, or 8in., be sprayed with Bordeaux mixture. Preservation of the crop depends on spraying at least every 10 days. In the event of the "tops" becoming seriously affected with blight, they should be cut off close to the ground and destroyed by burning. This is the only means of preventing the loss of the crop.

Crop Prospects

If the area of land available is 12ft. 6in x 10ft, and the tubers are planted as already advised, 10lb of seed averaging five to the pound will be sufficient. The area (that of a small bedroom) will allow for five rows 2ft. apart, setting 10 tubers to the row, and, if the crop is grown, as suggested, from Government-certified mother seed and proper cultural and spraying methods are adopted, it should easily produce 80 to 100lb. of edible potatoes.

And at what cost? Crop sprayed five times with Bordeaux mixture, using 2 gallons at each application:—

	s.	d.
Bluestone	0	6
Hydrated lime	0	1
Mixed fertiliser	1	0
Seed—10lb. at 2d per lb.	1	8
Total	3	3

This computation is based on bulk buying.

Bordeaux Mixture

Bordeaux mixture is a combination of specified quantities of sulphate of copper and lime, preferably hydrated lime.

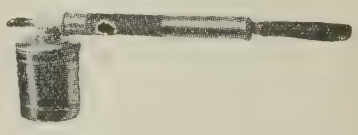
To make 5 gallons of the mixture, dissolve ½lb. of bluestone in half the required amount of water in a copper, wooden, enamel, or earthenware vessel. (A benzine tin which has been heavily coated with coal tar or pitch is also suitable.) This is best done by tying the bluestone in a piece of sacking and suspending it in the water.

The ½lb. of lime should be mixed with a small quantity of water and stirred until it is thoroughly mixed and in a creamy condition. More water should be added before mixing with the bluestone, which must be completely dissolved before the two are put together in the same container. The two concentrated solutions must never be mixed before dilution. The mixture should be a deep, sky-blue colour. A rough test for acidity may be made by holding in the solution a clean knife blade or a bright nail for a few minutes. If, on withdrawing either of these, a coating of copper appears, additional lime is required.

How to Apply It

Bordeaux mixture should be applied as soon after preparation as possible, but must not be sprayed on wet plants. Efficient spraying is achieved only when the whole plant is covered by the liquid used. It is important that the underside of the foliage should be covered in a similar manner to the upper side.

The sprayer must not be of tin or iron. If either of these is used the Bordeaux mixture will attack it, resulting in the sprayer being ruined and the mixture rendered useless. The accompanying illustration shows a



handy little sprayer made of brass and produced in New Zealand. A short piece of bent copper or brass tubing attached to the outlet will enable the underside of the foliage to be sprayed as easily as other parts of the plants.

— *D. K. PRITCHARD, Instructor in Vegetable Culture, Wellington.*

APIARY NOTES

Contributed by Officers of the Horticulture Division

Crop Reports for 1940-41 Season

A BRIEF summary of reports received by the Director of the Horticulture Division from Apiary Instructors on the honey crop for the past season in various districts throughout New Zealand is given below.

Auckland and North Auckland.—Favourable weather conditions for nectar secretion predominated during most of December, but rainfall was below average; consequently, pastures dried off much quicker than usual. Good rains during January were offset by drying winds, and altogether the season has been disappointing, with crops below average around Auckland, but fairly good in North Auckland areas because of the sources, especially white and red rata, yielding late and much better than usual.

Hamilton, South Auckland.—A dry spell in December seriously affected the growth of white clover, but heavy rains during January saved the situation. Beekeepers found their first extraction darker in colour than usual through the bees having reached tea-tree sources. Although the crop was better than last season the storage of thick honey seriously affected the final returns as the supers did not yield the quantity of extractable honey expected.

Hastings.—Good rains during January revived the pastures and provided an excellent growth of white clover. Conditions generally remained favourable, and excellent crops of good quality honey have been secured in most parts throughout Hawke's Bay. Average to poor elsewhere in the Hastings inspection district.

Palmerston North.—During the early part of December a fairly substantial honey flow from mixed sources was experienced, clover gradually predominating in most areas. Although the general condition of pastures remained good, the bees were unable to work all floral sources to the maximum because of adverse weather conditions. Consequently the crop as a whole was lighter than last year.

Canterbury.—December was a dry month, but pastures were in good condition and were yielding well in Mid-Canterbury and North Canterbury, while on Banks Peninsula the season to the end of December was the best experienced for many years. As the season progressed conditions became too dry in most localities, especially in North Canterbury and Plains areas. The crop over the whole province will not exceed an average one, although individual beekeepers whose hives were strong in bees early in the season secured crops a little better than average.

Otago and Southland.—With the exception of North Otago, where conditions were very dry, all pastures and flowering trees were showing well at the end of December, and by the end of January prospects were bright for heavy crops in Otago and Southland. Hot weather and strong winds which followed, however, soon dried up pasture lands; consequently, the honey flow practically ceased early in February, and although crops generally are lighter than at first expected, the total crop is better than last year. Dry conditions in North Otago were responsible for crop failures.

Greymouth.—Prospects were good early in the season throughout Westland, Nelson, and Marlborough districts, but changeable weather in Westland during January eased up the honey flow considerably, and rata did not flower to any great extent this year. Honey crops secured, however, are 60 to 100 per cent. better than last year in all areas.

Seasonal Work

The chief need for securing a surplus crop of honey from the main flow which will occur during November, December, and January next season, according to location in New Zealand, is the presence of an enormous population of young worker bees at the beginning of the flow. In order that a colony may have the necessary population at the right time, it must reach the spring period, which begins in September in most parts, with a good force of young bees that have not expended all their vitality during the winter period.

The losses following starvation are no less serious a menace to the beekeeper than disease.

There are also other factors, such as shelter, waterproof hives, correct ventilation, and young queens, all of which play a part in the wintering problem, as described in previous notes in the "Journal," but, above all, a supply of sufficient food to meet the requirements of the bees between seasons is essential.

Food Supply

Experience has shown that where colonies are provided in the autumn with 35lb. to 40lb. of honey they will winter well and build up rapidly the following spring in most districts. Calculating on the basis that a full comb contains approximately 5lb. of honey, it is easy to estimate the weight of honey in each hive.

Beekeepers should realise that the foundation for a crop of honey is laid the previous autumn, and should provide the bees with a liberal supply of honey on which to winter.

Drones and Queens

Drones are not tolerated in a normal colony during the winter, and where they are found in a hive at this time of the year it indicates that the colony is either queenless or has a failing queen. In either case the colony should not be allowed to continue in that state, but should be united to another colony of medium strength. The queen depends upon a force of young worker bees to carry her through the winter, and similarly the workers depend upon the queen and an adequate food supply to maintain the strength of the colony in the spring when the autumn-raised worker bees die off rapidly.

(*Continued on page 367.*)

Notes for the Poultry Farmer

Contributed by Officers of the Livestock Division

"BAD EGGS"

Investigations Show Need For Preventing Shortage Of Green Feed Next Summer

By F. C. BOBBY,
Superintendent of Poultry Husbandry, Wellington.

NUMEROUS complaints were made by consumers last January of what were termed "bad eggs." Considerable comment appeared in the daily Press in centres as widely separated as Auckland and Dunedin, and in view of this outcry the New Zealand Poultry Board asked for help from the Department of Agriculture in the form of an investigation into the matter. An investigation of a preliminary nature was accordingly made, and some interesting data obtained.

The first fact ascertained was that the whites of the so-called "bad eggs" were thin or watery, while their yolks collapsed and ran into the whites when broken for poaching or other cooking purposes. There was evidence to indicate that the majority of these eggs arrived in a fresh state on the merchants' floors, but deteriorated rapidly when passed forward for retail sales. Inquiries indicated that this state of affairs existed in at least three out of the four main egg marketing centres.

Further investigations revealed that merchants were of the opinion that most of the trouble came from particular lines of eggs, that is, from certain producers only. This suggestion was followed up, and farms about which both good and bad reports were received were visited in the North and South Islands. During these visits a careful note was made of the class of stock kept and the general management in force. Collectively, it was this information which proved to be of considerable interest as a preliminary inquiry into this problem.

Marketing Conditions

The influence of marketing conditions at the time as a factor in the problem was not lost sight of, and there was some evidence of delays in deliveries because of the holiday season. Because of the hot weather prevailing at this time, some eggs probably deteriorated as the result of these delays. Against this possibility must be set the fact that certain lines of eggs were definitely established as being poorer in quality than the remainder. In other words, eggs from certain producers deteriorated more rapidly than the remainder when held up in marketing channels.

It will be agreed that it should be the object of every poultryman not only to place large quantities of eggs on the market, **but also eggs of the highest quality.** Good quality eggs will stand up more easily to the strain placed upon their quality by slow marketing in hot weather, which must occur from time to time however efficient the general marketing scheme may be.

By January, pullets have been in lay for some seven or eight months. While their eggs during the first four to five months of laying are usually of good quality, those produced later often tend to deteriorate in quality. The natural reserves in the bodies of these birds have been drawn on heavily by a high and rapid output of eggs over a long period. It is logical, therefore, to assume that unless these birds receive good management and **correct** feeding there will be nothing to replace these natural reserves, and egg quality may suffer accordingly.

The problem of poor quality eggs from pullets as the season advances is common to both Great Britain and the United States of America. Research work indicates that feeding has only a small bearing upon this matter and that the strain of bird is the main factor. Undoubtedly this is the case where correct feeding is under consideration, but there is evidence to show that exceptional circumstances in feeding and in the season will also play their part.

Shortage of Green Feed

Investigations in New Zealand this year, although only of a preliminary character, appear to support the suggestion that feeding and season do influence egg quality. A number of farms reported as supplying poor quality eggs were visited, and in all cases, except one, inquiries at these farms revealed that green feed had been short because of the dry summer, and that the owners were not supplying any minerals in their laying mash. Furthermore, eggs were examined by candling at these farms and the egg shells proved to be of poor texture. These shells were frequently porous and brittle. Conversely, on three large farms in widely separated districts about which good reports had been received, it was found that ample green food was available, and, in addition, minerals such as oyster shell and ground lime were being fed in the mash in satisfactory quantities.

In view of the data collected during this preliminary investigation poultrymen are reminded **now** of the necessity for providing their farms with green

crops for use next summer. At a suitable date early next summer a further appeal will be made for the use of this green food in conjunction with sound rations as a precaution against the recurrence of "bad eggs" in January of next year. Such an appeal will be useless unless poultrymen have looked ahead and planted crops beforehand.

An article upon the cultivation of green food and its uses has been specially written for this issue of the "Journal," and all poultrymen reading these poultry notes are urgently requested to give this matter their serious consideration.

Eggs for the table are the primary product of the poultry industry, and everything possible must be done to persuade the public to consume more eggs. Any neglect upon the part of poultrymen which directly or indirectly leads to a lowering of the quality of eggs placed before the public may tend to reduce consumption. This is a definite disservice to the industry.

Production of Green Food

NO poultry farm is complete without an area under cultivation for ample supplies of succulent green material. The green food patch is of paramount importance for every poultrykeeper unless other sources of supplies of green food, such as watercress, lawn clippings, and suitable vegetable tops, are available in the district at a nominal cost or just for the labour involved in collecting them. While it is important that this food should be in abundant supply, it is also imperative that it be of such quality that it will be readily consumed and relished by the birds, either when fed separately or incorporated with other foods given in their daily ration.

It is questionable whether the true value of a plentiful supply of succulent green food is sufficiently realised, for on many places fowls get only what they can pick up in the pens or fields. This is not enough, and where poultry are kept in limited areas, the ground quickly becomes tainted and stale, with the result that the quality of the green food available is of little value from a feeding point of view. On some farms one sees no great attempt to cultivate the soil for growing suitable supplies of green food.

Economical and Health-giving Food

Abundant supplies of green food not only make for economical production, but they are essential for the maintenance of the good health of the birds. Now that grains and meals are at high price levels and are also difficult to obtain regularly, it will pay well to feed green food and suitable root crops with a liberal hand. The young leaves of growing plants and blades of grasses are a most valuable food for poultry because of their natural juices, and when fed in regular supply they assist Nature in imparting fresh life to the

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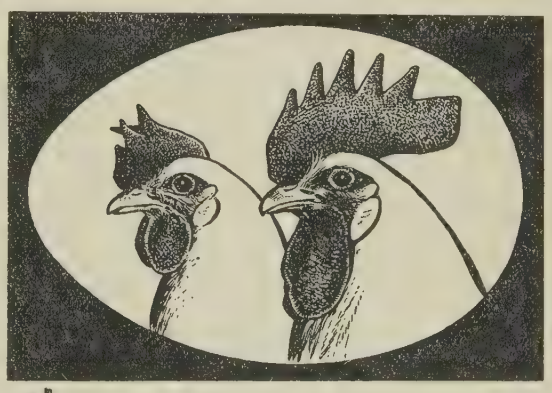

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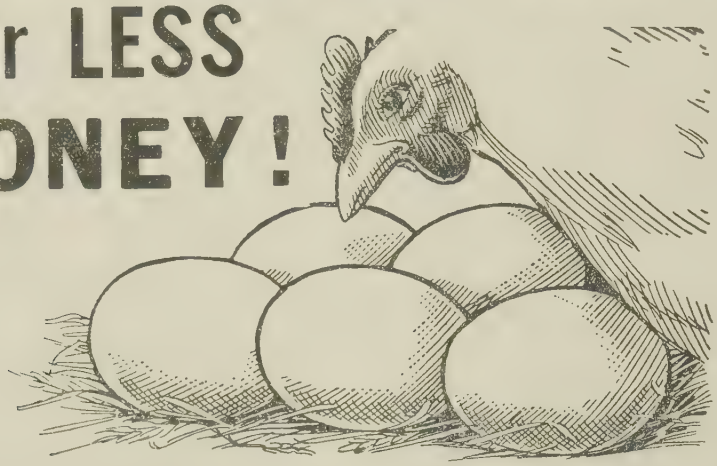

Eggs are scarce again . . . prices UP! Hence, every additional egg your birds can be induced to lay is of vital importance and **must be laid** to help you hold a profit. With grain and meals in limited supply at high prices, no poultryman can afford to have a single hen of his flock iin unproductive idleness.

How then are you to increase your egg supply without adding to the number of your birds, with consequent greater outlay for feeding costs? . . . **By including British-made Karswood Poultry Spice regularly in the mash!**

Karswood is an outstanding poultry tonic that enriches the hen's blood and enables her to extract the utmost nutriment from her food, in turn converting this into an increased supply of new-laid eggs. Karswood has been PROVED times without number during the past quarter century to produce a yield of 5 eggs per bird weekly, and even better results when used consistently. So, if **your** birds are averaging no better than 3 eggs each per week, it is definitely possible, with the help of Karswood and without adding further to grain costs, to get an extra one or two eggs weekly per hen. This would work out on—

20 hens .... 1,000 to 2,000 EXTRA eggs a year.
50 hens .... 2,500 to 5,000 EXTRA eggs a year.
100 hens .... 5,000 to 10,000 EXTRA eggs a year.
150 hens .... 7,500 to 15,000 EXTRA eggs a year.

At the same time, Karswood (which contains ground insects) keeps the birds in fine fettle because it is a conditioner as well as an egg-producer. It cannot harm the birds—not a single chick, pullet, hen or cockerel has ever suffered under the Karswood system. On the contrary, millions of birds have become better egg producers and healthier stock. Further, the cost is ridiculously low for the results obtained. It costs under 1/8 a year to give Karswood to one bird every day of the 365 days and, in return, you stand to get anything from 50 to 100 EXTRA Eggs per hen. **Think of this in terms of profit over the Winter months alone.**

ACT NOW, Mr. Poultry Farmer—the sooner you start your flock on Karswood, the sooner will your Winter egg supplies increase. And, remember, every additional egg you gain means real money in your pocket without the drain of extra outlay on feeding costs.

Karswood is obtainable from all Wholesalers and Stores—

½lb. packet 1/-; 1 lb. packet 2/-; 7 lb. tin 12/6.

KARSWOOD POULTRY SPICE

Increases egg-production without forcing, because it contains ground insects, but no cayenne pepper, etc.

birds. They also prevent troubles caused by the confinement of poultry to limited areas.

The necessity for regular feeding of green food to young growing stock cannot be too strongly advocated. They always make the best growth when they do not receive a setback of any kind, and often the worst check of their healthy development may be caused through the lack of green food during the growing stages. While green food materially assists in reducing the cost of feeding, therefore, it also maintains the good health of the fowls, building up their vigour and resistance to disease.

Effect on Quality Of Eggs

Complaints are frequently made by consumers about the paleness in the colour of the yolks. This is generally due to the birds not receiving sufficient and regular supplies of good-quality green food, which particularly applies where poultry are kept under intensive methods of housing.

Green food is also of considerable importance to breeding stock, and its value is reflected in the embryo development of chicks and the production of chickens with strong vitality, so that no poultrykeeper can afford to neglect the vital importance of seeing that his flock is supplied regularly with a good variety of succulent green food.

Producing Green Foods

Suitable green materials can be obtained from various sources on the farm. Firstly, there are permanent green food areas which can be laid down, including lawns and lucerne, clover or watercress patches, which supply large quantities of good green food over the greater part of the year.

Secondly, there are seasonable green materials which are best planted at certain times of the year, and, if given good average cultivation and general care, will supply abundant quantities of very good green stuff for many months. In this case, it will be necessary to replant each season at suitable times for the best growth in the district concerned. These crops are silver beet, Chinese or mustard cabbage, or those of the cabbage family, such as rape, kale, and chou moellier.

Thirdly, a particularly good method of producing large quantities of succulent green food is by catch crops which can be planted almost at any time of the year or sown down at certain seasons most suitable for their quick growth. The best for this purpose are oats, cape barley, Japanese millet, maize, and garden vegetable plants, such as lettuce and cabbages.

With all these sources, there is little reason for poultrykeepers to be short of green foods at any time of the year in this country. However, it is generally realised that the cold winter months are the worst season for obtaining regular supplies. Preparation for this period can be made by planting in the cultivated areas at suitable times a plentiful supply of root crops, such as carrots, beet, mangolds, swede turnips, and onions, as well as those vegetables of the gourd family, such as marrows and pumpkins. All these can be used most successfully at the time of the year when green foods are in short supply.

Feeding Green Food

Almost any vegetable top is suitable for feeding, but the leaves must be fresh, crisp, and as tender as possible. Coarse, dry, stringy green food contains too much fibre, and often causes impaction of the gizzard or crop binding of the birds. Variety is valuable, as some green foods contain different feeding values from others, but it is important that no sudden changes of green food are given when the birds are doing well. The best method is to introduce the change a little at a time until the birds have become accustomed to it.

Many cases of troubles being caused in this way have come under out notice. In one particular instance a sudden change was made in January from succulent green lucerne to hard-hearted yellow cabbage for a large flock of good-laying White Leghorns. The result was disastrous; not only were digestive troubles set up, but the great majority of the birds were forced into an early moult, causing considerable financial loss.

Green food in the form of leaves can be hung up in bunches in the houses or placed in wire-netting baskets or green-food racks about 12 inches from the floor, but should never be thrown on the ground for feeding purposes. If the feed can be cut up finely, so much the better, as the birds will always eat more when the green food is chaffed to a reasonable size.

Where moist mash is fed, at least one-third of the bulk can be good green food prepared in this way. In fact, the writer has known up to 45 per cent. of the bulk to be included in the mixture and fed to the poultry with excellent results.

In using the greed food in the mash, the best method is to mix the green chaffed food with the dry meals overnight and then cover with a sack until morning. The liquid is then mixed with it until the mash food is in a dry, crumbly condition. This method allows the meals to absorb some of the flavour of the green food, making the mash very palatable to the birds, while the amount of liquid used for mixing is not nearly so much as when the foods are all mixed fresh at the one time. Even when green food is fed in this way, it is a good plan to give a little extra fresh-cut green food to the fowls in the latter part of the afternoon. This acts as Nature's tonic. If a study of poultry habits is made with birds on free range, it will be observed that even after the fowls have eaten up their evening grain diet, they will roam some considerable distance from the house in the search for young tender blades of grass, and it is always wise to follow Nature's methods.

Root crops are best sliced in half and placed on spikes on the lower parts of the walls of the house, but well clear of any dirty litter on the floors. This keeps the flesh of the vegetable as clean as possible, and once accustomed to them, the birds will hollow them out to the skin.

Permanent Green Foods

Freshly-cut lawn clippings make excellent green food, and if they come from good grass pastures which have been well topdressed it is doubtful whether greater feeding value can be obtained off any given area of land. At the same time, this method of obtaining green food lends itself to keeping the grounds of the home and entrance to the farm in a pleasing order, and supplies abundant quantities of suitable green material during the spring and autumn months.

In laying down a lucerne patch care should be taken to prepare the ground thoroughly before planting. Regular cultivation of the soil during the spring months will destroy most of the spring weeds. For poultry farm work, planting the seed about the end of November and sowing it in drills about 15 to 18 inches apart will prove better than broadcasting, as it allows for weeding. Once established, the lucerne is not hard to keep in order, and the quantity of food produced will amply repay the trouble.

Watercress is one of the best green foods for poultry. It contains a good deal of iron, is always succulent, and appears to act as a great tonic to the birds. Like Chinese cabbage, mustard, and cress, it is hot to the taste. This causes the flow of greater quantities of saliva in the mouth, thus aiding the digestion of the foods eaten.

Seasonable Crops

Probably the best seasonable crop is silver beet, which is excellent for poultry. It is a heavy cropper, and is not subject to attacks by insect pests, as are many other plants. Sow the seed in the spring, and transplant early in December. With a reasonable season and average cultivation, one is assured of a plentiful supply of young, succulent leaves in the early autumn.

Where insects attacking cabbages are not troublesome chou moellier, kale, and rape can be grown. A useful method is to grow them in the poultry runs, and not only will this help to clean the ground, but if the birds are not allowed on the runs until the plants are well developed, they can then pick at the leaves without doing a great deal of damage to the plants. It will thus afford shade as well as green food during the summer months.

Catch Crops

In addition to the crops which are grown in the cultivated area of green food patch, both oats and barley are most useful. They can be planted in the poultry runs in the early autumn, when on many farms the young pullets are being housed for winter egg production. The growing of oats or barley mixed with grass in these runs is highly desirable. Two or three cuttings of these cereals can be taken off the areas during the winter months, providing a very useful adjunct to the green food supply. When the spring arrives and it is time to allow the birds out again, the runs are renewed in fresh green pasture.

In conclusion, the production of abundant supplies of green material lends itself to better management of poultry. Not only does it make for the production of better quality eggs and stock, but, if carried out on sound lines, it will go a long way towards keeping the plant in good order, preventing the ground from becoming tainted, and the fowls from becoming sick.

—E. C. JARRETT, Poultry Instructor, Auckland.

APIARY NOTES. — Continued from page 363.

Winter Inspection

While little, if any, work is necessary out in the apiary during the dormant period, an occasional inspection of the bees should be made to see that everything is in order, but on no account should the bees be unnecessarily disturbed, especially when they have gone into their winter cluster.

All the top boxes that have not yet been removed should now be taken off the hives and the bees confined to their winter quarters. After heavy rains it is advisable to examine the mats over the frames, and any damp mats should be replaced.

—T. S. WINTER, Senior Apiary Instructor, Wellington.

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N.Z. Federation of Young Farmers' Clubs

Edited by S. Freeman, Dominion Organizing Secretary

Y.F.C. Experimental Projects

Scheme for Young Farmers

To Carry Out Vital Work

FIELD experimental work is the last stage of agricultural research before it becomes farming practice. It is therefore of direct interest to farmers, particularly as it is here that the practical aspects of farming problems are most closely considered. Field experiments are the critical stage through which the results from the laboratory and plant breeding station must pass so that they may be placed with confidence before the farming community.

It is only natural, therefore, that most farmers are keenly interested in field trials, and this interest is shown in the multitude of very necessary simple demonstrations which most of them carry out at some time or another. A common trial of this nature is to miss a strip when topdressing pasture so that the effect of the fertiliser used may be roughly evaluated. A more detailed type of field trial is the observational experiment of which hundreds have been laid down over New Zealand by officers of the Fields Division **on a common basis** to give very necessary information over a wide range of soils and climates. Pasture topdressing experiments, pasture species and strains trials and trials with subterranean clover lend themselves admirably to this method of approach. Most crop trials need to be more complex and so arranged that yield figures may be obtained, and there are a multitude of simple and highly complex designs for this work. Perhaps the most difficult type of trial is the accurate pasture experiment from which yield figures or stock records are required, and the perfect technique for many problems of this nature has not yet been devised.

Examples of Problems

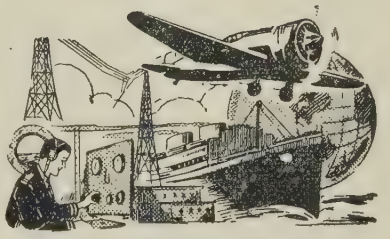
The essential character of such work is reflected in the increased numbers of experiments and widened scope of investigations which have arisen as a result of the constantly changing agricultural problems caused by the war. A few examples of such problems are given below.

(1) The search for substitute fertilisers due to the partial or complete cutting off of overseas supplies. Experiments with serpentine superphosphate which, if successful, might result in a saving of 25 per cent. of imported phosphate, have been laid down all over New Zealand and on pastures and all types of crops. Similarly, work has been undertaken with potash-containing material, such as seaweed and the rock "glauconite," in an endeavour to find material which will satisfactorily replace 30 per cent. potash salts.

(2) The quest for immediate information concerning new farming ventures of direct importance to the war effort. At the moment, trials with linen flax have special preference on this account, and we are urgently in need of information, particularly in respect of the best varieties for each district. In addition to this, our knowledge of the optimum rate of seeding and manuring, the best method of sowing and numerous other practical problems connected with the growing of the crop is far from complete. There is also a need for a wide survey by mean of "pilot" plots to determine the districts in which linen flax production may be safely expanded.

(3) The need to make present information more widely known to the farmer by means of demonstrational trials. The nature of this work permits simple trials, and is just as important as projects which are more strictly experimental in the sense that the results cannot be satisfactorily predicted.

(4) The need to prosecute field trials of newly bred, selected or introduced varieties of pasture plants and crops in order to find out their value as rapidly as possible and to discover the factors which will govern their distribution and practical use.



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(5) The search for methods of avoiding loss caused by diseases and insect pests. Work in connection with the control of club-root disease of swedes and turnips has met with encouraging results, as the effects of the disease have been considerably lessened with the use of "mercurated phosphate." Investigations into the control of "blind-seed disease" of ryegrass which causes low germination of the seed crop are proceeding.

Where the Y.F.C. Can Assist

Instructors in agriculture have been called upon to perform a multitude of additional tasks since the war began, and they now find it impossible, in many instances, to devote sufficient time to experimental work. Such work is vital, and it has therefore been suggested that the keen young farmers of the Dominion would assist themselves and their country by giving assistance in research projects. The scheme outlined below has been drawn up with this end in view, but it can only be a success with the wholehearted co-operation and maximum effort on the part of all members who participate. Although the greatest amount of assistance that can be given will be given, yet the essential nature of the scheme is to get results with the minimum of technical supervision.

This is an effort in which each member is individually responsible for the success or failure of his trial. He will therefore have to be both keen and intelligent, and be prepared to solve his minor problems and complications himself with the application of common sense and farming practice. After careful consideration of the matter the Department is confident that the Y.F.C. organisation will not fall down on the highly responsible job it has agreed to undertake.

Types of Trials Proposed

The policy of this work should be to have a minimum number of projects, so that each can have a large number of experiments of the same type devoted to it. One large-scale trial is of limited application, while we need a considerable number of small trials before satisfactory results can be secured. However, the diversity of farming types throughout New Zealand necessitates a rather large number of projects, but each district or club should as far as possible confine itself to one type of trial and lay down as many of these as possible.

The following proposed trials have already been distributed to District Secretaries.

(1) PASTURE SPECIES AND STRAINS TRIALS.

These trials have four main objects, namely:—

(a) To compare red and white clovers in various districts as sward constituents.

(b) To try out two types of white clover bred by the Grasslands Division, Palmerston North.

(c) To compare two types of ryegrass bred at the same place.

(d) To demonstrate the fallacy of "cheap" seeds.

(2) OBSERVATIONAL TOPDRESSING TRIALS ON PASTURE.

Essentially, these compare the relative merits of three forms of phosphate with and without lime. Superphosphate is the standard. Compared with this is "silico-super" (or serpentine superphosphate) and basic slag or, preferably, reverted super; in the former case the superphosphate is mixed with serpentine, and in the latter with burnt lime, and it will be seen that if the resulting product should be as efficient, weight for weight, as superphosphate a considerable saving of phosphate is possible. Liming also adds to the efficiency of phosphate utilisation, and can replace the latter to a considerable extent in many circumstances.

(3) WHEAT TRIALS.

Crop trials are necessarily more complex than the above, but much of this complication is more apparent than real.

(a) **Wheat Variety Trials.**—The most essential trial is with the recently-introduced "Holdfast" variety, which is compared with Hunters types and Dreadnought.

(b) **Wheat Manurial Trials.**—The rate of application trial (no manure, super ½ cwt. per acre, super 1 cwt., super 1½ cwt.) is aimed to discover the possibility of reducing the superphosphate application to wheat without materially affecting yield.

(4) LINEN FLAX TRIALS.

(a) **Linen Flax Varieties.**—These are essential trials which should be carried out by as many clubs as possible.

(b) **Linen Flax Manures and Rate of Seeding.**—The rate of seeding trial is most easily carried out on a small scale.

In addition to the above, it is proposed to outline trials with turnips and swedes, with rape and chou moellier and with lupins and peas. An opportunity will also be given to establish small areas of sugar beet for those districts interested in this crop.

As a final word to all who are undertaking trials, we do request that you examine all sowing instructions carefully and take every interest in the preparation of regular and detailed reports. Many difficulties which seem insuperable at first will vanish with a closer study of the problem. There is a job to be done, and here is your chance to show your ability to carry it through successfully.

—Crop Experimentalist.

Value of Y.F.C. Experimental Projects

IT is interesting and gratifying to be able to state that wherever I have had the opportunity to discuss the proposed Y.F.C. Experimental Scheme at club, district committee and council meetings, the general opinion has been that its introduction will result in a definite contribution to the knowledge of individual members and to the work of the Y.F.C. movement as a whole.

It is considered that, from the individual and club standpoint, the scheme will do much to develop powers of observation, thereby giving an increased interest in the particular crop and phase of experimental work carried out. The practical value of the work as an aid to farming knowledge is also a factor that should lead to its encouragement. The scheme provides work of a practical nature that can be undertaken by many members who find it difficult to take a prominent part in other club activities.

The possibilities and scope of the scheme are wide, and in addition to doing work of national importance and directly assisting in solving some of the many problems with which they and their fellow farmers are confronted, members undertaking the experiments on behalf of their clubs will have the satisfaction of realising that they are doing something to help keep their own organisation alive and give it further opportunity to justify its existence.

It is hoped that clubs will take up the scheme wholeheartedly and do as much as possible to ensure its success. The onus of giving publicity and assistance to the scheme has been placed on the district committees, and full particulars of the projects and their application can be obtained by the hon. secretaries of clubs from their district Y.F.C. secretary.

—Organising Secretary.

Y.F.C. Patriotic Ball at Stratford

TO assist the recent Queen Carnival effort in Taranaki, the combined Young Farmers' Clubs in the Central Taranaki district held a Patriotic Ball in the Stratford Town Hall. The ball was a marked success, more than £40 being taken at the door. As most of the "sit-down" supper was provided by members of the Women's Institute, the expenses were very light.

The duties of Ms.C. were capably discharged by Messrs. I. S. Harper (District Chairman), G. Burgham (District Vice-Chairman), and W. Pitcairn.

The Stratford Queen, Miss Grace Rankin, and Mr. Robins, Chairman of the Patriotic Appeal Committee, were present. Mr. Robins thanked the Young Farmers for their splendid effort, and referred to the good work done by the Y.F.C. District Secretary.

The table decorations, arranged by Mrs. Heslop, of Stratford, were exceptionally fine. Members of the Y.F.C. District Executive met in the afternoon and carried out all necessary preparations for the evening, making a particularly good job of the floor. Some very eulogistic remarks were passed about the ball, and the Young Farmers' Clubs' members and executive are to be congratulated on their effort.

Kakepuku Y.F.C. Calf Rearing Competition

By W. G. NEILL, Jnr. Chairman, Kakepuku, Y.F.C.

THE Kakepuku Club is extremely fortunate in having so many of the older farmers of the district actively interested in its work, and it was with the idea of encouraging better rearing of calves by Y.F.C. members that Mr. G. S. Clarke offered to donate a Challenge Cup for competition in calf-rearing under the following rules:—

(1) Allowances: 80 per cent. of total to be shown if number in group exceeds 6. Minimum group of 4.

(2) All calves kept from June 1 eligible.

(3) Calves to be judged on type 10 points, condition 70 points, bloom and skin 10 points, conformation of group 10 points.

(4) Calves to be reared by nominators.

(5) Calves to be judged first 10 days of March.

(6) Records of amounts and types of food used must be kept.

(7) All calves with one exception to be heifers. Steers ineligible.

(8) All calves must be hand fed.

Messrs. A. Lancaster and J. S. Pattison, both highly respected calf judges in the district, consented to act as judges. Their awards were as follows:—A. A. Rushbrook, 90 points, 1; G. F. Langdale, 88½ points, 2; Ray Bros., 88 points, 3.

The competition was keenly contested by a large number of members, and the judges paid tribute to the excellence of the calves brought forward.

It is hoped that this type of competition may be adopted by other clubs, as its value to the dairying industry is only too apparent.

Y.F.C. Soldier's Distinction

CORPORAL O. G. Fallow, who was a student at Canterbury Agricultural College, Lincoln, before volunteering for overseas service, has been awarded the Diploma of Agriculture. Corporal Fallow has also been awarded two special prizes of the college, the W. B. Cunningham Memorial Cup for dairying, and Matson and Company's challenge cup for keenness and improvement. He also shares with two other students the honour of winning Wright, Stephenson and Company's challenge cup for excellence in farm work, and Dalgety and Company's challenge cup for shearing, shepherding and wool classing.

Corporal Fallow, who is a son of Mr. A. M. Fallow, of Thornbury, was an active member of the Thornbury Young Farmers' Club, and a little over two years ago was awarded the Lincoln College Old Boys' Scholarship, open to all members of Young Farmers' Clubs in the South Island. He completed his course at the college last November.

Among the Clubs: Reports on Activities

Western Southland.

Dipton.—Annual meeting. Officers elected: Advisory president, Mr. F. T. McRae; chairman, B. King; secretary, W. B. Wilson; Treasurer, B. Sinclair.

Drummond.—Impromptu speeches by members. Officers elected at annual meeting:—Advisory president, Mr. H. Hubber; chairman, D. Cowan; secretary and treasurer, I. H. Lindsay.

Thornbury.—Annual meeting. Officers elected:—Advisory president, Mr. J. Linscott; chairman, T. McKenzie; secretary, J. I. Lindsay; treasurer, K. McKenzie.

Wyndham.—Annual meeting. Officers elected:—Advisory president, Mr. E. Rabbidge; chairman, J. McLaren; secretary and treasurer, E. Rabbidge.

Eastern Southland.

Balfour.—Lecture on "Pasture Management and Seed Mixtures."

Five Rivers.—Business meeting: programme planned for the year.

Otama.—Address by Mr. S. D. Blomfield. The speaker outlined the best ways in which to utilise the present manure supplies available.

South Otago.

Lawrence.—Address by Mr. Stuart, of Cawthron Institute.

Warepa.—Talk by Mr. A. J. Christie on "The Maintenance and Repair of Farm Implements."

Dunedin.

Palmerston.—Annual meeting. Office-bearers re-elected.

South Taieri.—Two new members welcomed. Impromptu speeches by the following members:—A. Drake (Wool Classing); R. Spencer

N.Z. Young Farmers' Club in Egypt

The Div. Cav. Young Farmers' Club at the Agricultural Museum at Cairo.

(Home Guard); J. Neill (Dairy Farming in the Waikato). Officers elected at annual meeting:—Advisory president, Mr. R. Henderson; chairman, J. Wither; secretary and treasurer, J. A. Neill.

West Taieri.—Annual meeting. Officers elected:—Advisory president, Mr. F. D. Reid; chairman, A. V. Johnstone; secretary and treasurer, W. A. Young.

North Otago.

Enfield.—Talk by Mr. O. Loe on "The Care of Horses and their Well-being," followed by general discussion.

South Canterbury.

Geraldine.—Club to co-operate with the Farmers' Union in a "tarpaulin-muster" for the Million Pounds Appeal at the Winchester Show. Talk by Mr. C. S. Davies on "Farming in England."

Christchurch.

Darfield.—Annual meeting. Officers elected:—Advisory members, Messrs. C. O. Redfern and R. S. Gunn; chairman, R. M. Fechney; vice-chairman, A. McLachlan; secretary, L. P. McLaughlin; asst. secretary, K. H. Jarman.

Ellesmere.—Annual meeting. Officers elected:—Advisory president, Mr. G. W. R. Osborne; chairman, D. Hurford; secretary, W. T. Abbott; treasurer, A. Lambie.

Springston.—Annual meeting. Officers elected:—Advisory president, Mr. P. V. Bailey; chairman, C. Tyson; secretary, E. Opie; treasurer, C. Bailey.

Teddington.—Annual meeting. Officers elected:—Chairman, J. F. Coop; secretary and treasurer, T. E. Streeter.

Nelson.

Murchison.—Annual meeting. Officers elected:—Advisory president, Mr. C. Lynch; chairman, J. A. Thurlow; secretary, C. James; treasurer, C. Peacock. Mr. C. Rait presented the cup to H. Watson, winner of the pasture competition. At a previous meeting a talk was given by Mr. R. Nalder (an invalid soldier) on "Life in Egypt and India."

Marlborough.

Blenheim.—Annual meeting. Officers elected:—Chairman, C. R. Laidlaw; vice-chairman, J. A. Middlemiss; secretary and treasurer, D. K. Mulligan. Moving pictures exhibited by Mr. W. G. G. Cuddon showing views of various mechanised farm implements on local farms, including some on club members' farms.

Wairarapa.

Carterton.—Annual meeting. Officers elected:—Advisory president, Mr. G. E. Allen; chairman, J. Rose; secretary, B. Brassell; club reporter, T. Orr.

Martinborough.—Annual meeting; election of officers.

Masterton.—Annual meeting. Officers elected:—Advisory president, Mr. V. Blatchford; chairman, W. Cooper: vice-chairman, C. A. McKay; secretary, W. D. Buick; treasurer, K. Donovan; club reporter, J. S. McKay; auditor, Mr. R. H. Williams. The proposed Y.F.C. experimental scheme was discussed, and also arrangements for the current year's programme.

Horowhenua.

Otaki-Te Horo.—Talk on "Pasture Mixtures" by Mr. G. S. Robinson, Department of Agriculture.

Tokomaru.—Business meeting.

Manawatu.

Apiti.—Address by Mr. W. T. Pratt entitled "A Tour of England and Scotland at the outbreak of War."

Bunnythorpe.—Arrangements for annual dance. Talk by Mr. H. A. Bayley, Inspector of Stock, on "How to Conduct a Post Mortem Examination." Officers elected at annual meeting:—Advisory president, Mr. J. Linklater; chairman, R. E. Clevely; secretary and treasurer, C. S. Anderson.

Feilding.—Discussion re stock judging competitions at Feilding A. and P. Show. Club debate, "That Feeding is of greater importance than Breeding, in the Maintenance of Production in Livestock"; speakers, H. Raven, D. G. Colquhoun, R. Hamilton (affirmative), T. M. Henson, N. E. Henson, T. Thurston (negative). The award was given to the negative team.

Kairanga.—Short address by Mr. Ellworth about the Kairanga Bull Circle. Talk by Mr. Bailey on "Diseases in Stock." At the previous meeting a discussion took place as to whether women should be included in the Y.F.C. movement in New Zealand. It was decided to forward the following remit to the District Committee:—"That Women be included in the Y.F.C. Movement." It was pointed out in support of this that young women are helping considerably on farms at the present time. The following officers were elected at the annual meeting:—Advisory president, Mr. N. P. Neilsen; chairman, A. Neilsen; secretary and treasurer, B. Sorensen.

Kimbolton-Kiwitea.—Annual meeting.

Rongotea.—Two new members elected. Mention made of successful Church Parade held at Anglican Church. Vote of sympathy with Mr. J. O'Connor on the loss of his brother. K. Redmayne appointed as temporary secretary while present secretary in Territorial Camp. Talk by Mr. C. C. Taylor, Palmerston North, on his observations while resident in Sweden. It was decided to submit Mr. Taylor's name to the District Committee, to be added to the list of speakers available to clubs. Officers elected at annual meeting:—Advisory president, Mr. H. J. Lancaster; chairman, G. Pearson; secretary and treasurer, M. Huddleston.

Wanganui.

Bulls. Annual meeting. Officers elected: Advisory president, Mr. R. O. Dairymple; chairman, C. Orr; secretary, S. G. Avery; treasurer, C. Palmer. Club to endeavour to enrol younger members; scheme proposed to interest older farmers in club lectures, etc. Dance to be arranged, with assistance of Junior Women's Division, for members of Air Force at Ohakea R.N.Z.A.F. Station.

Mangaweka.—Business meeting, enrolment of new members. Officers elected at annual meeting:—Advisory president, Mr. G. N. Bramley; chairman, M. Gardner; secretary, N. D. Weston; treasurer, C. Dickson. A field day was held on Mr. A. L. Wheeler's property, Leedstown, Marton; Mr. Wheeler gave a very able and interesting demonstration on his stud Romney sheep.

Taihape.—Annual meeting. Officers elected:—Advisory president, Mr. W. Benson; chairman, J. Gilbert; secretary and treasurer, B. J. Collerton. The club held a very successful dog-trial on the Moawhango Collie Club's grounds. There were two classes, Hunterway and Short Head, 13 and 14 entries being received for these respectively. The judge, Mr. F. R. Cottrell, commented favourably on the standard of work put up and the keenness of the members. The profits from the activity were handed to the Patriotic Fund.

Waimarino.—Annual meeting. Officers elected:—Advisory president, Mr. A. Scarrow; chairman, O. Hammond; secretary and treasurer, D. G. Lynch.

Central Taranaki.

Cardiff.—Annual meeting. Talk by Mr. G. A. Blake, Department of Agriculture, on "Manurial Trials," followed by an interesting discussion.

North Taranaki.

Hillsborough-Tarurutangi. — Club debate, "Tractors v. Horses"; speakers, N. Warren, N. Sampson, D. Marsh, R. Dixon (horses), R. Meharry, E. Anderson, D. Martin, Keith and Ken Eichestead (tractors). Officers elected at annual meeting:—Advisory president, Mr. A. Kain; chairman, R. Meharry; secretary, E. Anderson: treasurer, D. Marsh.

Mangamahoe.—Annual meeting. Officers elected:—Advisory president, Mr. A. H. Jordan; chairman, B. B. Monk; secretary and treasurer, R. J. Jordan.

Mangorei.—Field day on Mr. H. West's property and "Meonstoke" farm. Mr. West gave a demonstration on the breaking in of a young horse, and Mr. Perian, Manager of "Meonstoke," demonstrated the use of "teaser" rams on stud ewes, and took a test to show fertility of rams. Hints on sheep farming generally were also given.

Central Hawke's Bay.

Onga Onga.—Annual meeting. Election of officers, etc. Discussion as to whether club should go into recess because of unsettled times; decided to carry on with meetings and other activities as in the past.

Northern Hawke's Bay.

Meeanee.—Business meeting. Arrangements for annual meeting, etc. Impromptu debate "Hand-milking v. Machine-milking" won by the supporters of "machine-milking" by a narrow margin.

Putorino.—Annual meeting. Election of officers. Lecture by Mr. F. Hudson, Wairoa, on "Hydatids and Stock Ailments." At the previous meeting Mr. D. Stewart gave a talk on "Farm and Pasture Management."

Poverty Bay.

Te Karaka.—Speeches by club members (for Mr. Bull's trophy):—W. Pevreal ("Tea"); B. Campbell ("Why I work on a Farm"); H. Robertson ("Socks"); M. Campbell ("Carburettors"); C. Nesshausen ("Lucerne"); A. Manuel ("Rubber"); H. McLeod ("Public Speaking"); E. Trafford ("Sweets"); J. Bayley ("Setting up Mower and Plough").

Western Bay of Plenty.

Kati Kati.—Business meeting. Arrangements for social.

Pukehina.—Annual meeting. Officers elected:—Advisory president, Mr. S. E. Winton; chairman, D. W. Shearer; secretary and treasurer, A. B. Gordon.

Tauranga.—Arrangements for dance: fishing excursion to be held. Moving pictures exhibited by Mr. S. A. Woods, comprising a variety of subjects of local interest, including sword fishing, sports meetings, and the unveiling of a Maori Memorial at Motiti Island.

Te Puke.—Annual meeting. Officers elected:—Advisory president, Mr. D. S. Ross; chairman, P. Nichol; secretary, D. Caldwell; treasurer, J. Roderick. A remit to the District Committee was carried to the effect that the Y.F.C. stock judging competition at Te Puke Show be dropped in favour of an annual field day.

Waihi High School.—Business meeting; arrangements for talk at next meeting; discussions re visits to local farms.

Thames.

Hauraki.—Annual meeting. Officers elected:—Advisory president, Mr. W. Cheale; vice-president, C. Townsend; club chairman, P. Martin; secretary and treasurer, J. C. Epps. Impromptu debates to be held at next meeting.

Waikato.

Cambridge.—Field day arranged. Members on active service to be presented by club with some token of esteem and appreciation. Talk by Mr. G. Walsh on "Character Building in Relation to Farming." Officers elected at annual meeting:—Advisory members, Messrs. A. Gasgoigne, A. D. Fisher, and G. Walsh; chairman, A. Feisst; vice-chairman, D. Clemow and G. Goodwin; secretary, T. F. Turkington; treasurer, R. Giles.

Kakepuku.—Annual meeting. Officers elected:—Advisory president, Mr. H. R. Clarke; chairman, W. G. Neill, jr.; secretary and treasurer, J. Hughes; auditor, A. H. Smith.

Tahuna.—Business meeting. Sheep dog trial to be held; arrangements for annual ball.

Tauhei.—Letter on farming, etc., in Suva, Fiji, written by an overseas member, was read to the meeting. Club debate held, "Which are more profitable—Store Pigs sold as Porkers, or as Baconers?" Speakers, T. Osborne, G. Harris, J. Miller, M. Gee (porkers); G. Smith, K. Rowling, G. Gee, S. Rogers (baconers). The debate resulted in a draw; Mr. J. Brown officiated as judge.

Auckland.

Clevedon.—Lecture by Mr. O. C. Munro, on "Pasture Management." Officers elected at annual meeting:—Advisory president, Mr. A. D. Bell; chairman, D. Ryburn; secretary, D. Cook; treasurer, A. S. Bell.

Franklin.—Arrangements for clearing Centennial Memorial Tree area; baconer competition discussed and finalised. Dance to be held for Queen Carnival fund.

Hunua.—Judges selected for field day at Wesley College, G. Redshaw, D. Sleeth, E. Sexton, I. Bradstreet, D. White, G. Nicholson, J. Redman, L. White, and W. Wellacott. Lecture by Mr. H. Woodyear-Smith on "Soils," followed by discussion. Club dance arranged. Club decided to carry on, despite depletion of membership.

Warkworth.

Wellsford.—Annual meeting. Officers re-elected. Talk by Mr. P. S. Syme, Department of Agriculture, on "Pasture Management."

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Health Notes for the Farm

Contributed by the Department of Health

Mental Health Counts As Much As Physical Health

MENTAL disorders are almost as common as physical disorders, and are due, not to "fate," but to definite causes, many of which are preventable. The foundation of much mental ill-health is laid in childhood by indifferent training, bad example, or wrong environment. Moreover, to ensure a healthy outlook in children, a prime necessity is that the body should be healthy. There is an intimate association between the body, brain, and mental health. It is important, therefore, that the earliest signs of disease should be discouraged and dealt with, and that those simple laws of healthy living so often outlined in these articles should be strictly observed. For the formation of a healthy mental outlook, and therefore a happy, courageous, and useful personality, the following advice is offered, particularly to the young people.

Habits are formed partly by making errors and correcting them. The home chiefly, but also the school, should be a place where we can make mistakes and have them corrected without harmful results.

The mind requires:—

(1) Mental work and mental rest.

(2) Proper control of feelings and behaviour.

Mental Work.—Just as your body requires exercise or work, so does your mind. You want to think hard about all sorts of things. A child should work hard (but not absurdly hard) at his lessons, but he should think hard about all sorts of other things as well

Mental Rest.—Mental rest is of two kinds. The mind as well as the body is rested when we sleep. But the mind is also rested when it is amused, as by a little fun with friends, a party or a game, or by quietly watching something beautiful. The condition of the body affects the mind and the mind affects the body. Be cheerful. Laughter is a great tonic; it drives away gloom and sorrow.

A child should be taught to:

Cultivate common-sense and learn to control himself.—Habits of right thinking are most important, and the first thing a child has to do is to get the **right attitude towards life.** Troubles, disappointments, worries, are the common lot of mankind. When this is realised the big ones can be faced with courage and patience. Small upsets and little annoyances of life should be accepted as a matter of course, for to give them excessive attention spoils all the joy in life, and causes many a nervous breakdown.

Control his Temper.—The next thing a child has to learn is to **keep his temper.** He should be taught not to fly into a rage over every annoyance or disappointment or contradiction. He should be taught to forget it and turn his attention to something else.

Waste no time over spilt milk.—Somebody once asked the Duke of Wellington, "How is it that your plans are always so much better than the enemy's?" He replied, "They aren't better really, but when one plan goes wrong, I am quicker at making a new one." He didn't cry over spilt milk; he promptly went on to something else.

Do unpleasant jobs promptly and thoroughly.—If a child has any job or duty which he doesn't like doing but which has got to be done, he should be taught to set to and do it at once and as well as possible. There are always unpleasant jobs to be done, cleaning up garbage, for instance; but how tidy the garden is afterwards and how proud of it the child feels.

Behave nicely, whether he feels like it or not.—Conduct or behaviour is supposed to show our true feelings, but this is not altogether true. We can be polite when we feel cross, and by behaving pleasantly or cheerfully we soon actually feel more amiable or happier. Doing something interesting with the hands will often help to work off ill-temper or unhappiness—girls can knit or sew, boys can do carpentering or woodwork.

Never to cultivate a grudge or a grievance against fate, or against any person.—This is an important rule. A child should be taught not to brood over misunderstandings or wrongs suffered, however unjust they may be. He should be taught not to cultivate jealousy or envy. He should try and forget them by turning his interests to some other object. Friends get very tired of hearing of grievances.

Be calm and placid.—A child should be taught that if something has gone wrong and he can do anything about it, he should do it. If he cannot help in the least, then he should quietly and bravely endure it. If he is frightened, say, of the dark, he should be told to think how many nights he has already lived, and in how few of them anything harmful has happened.

Not to think and talk about what he feels.—A child should be taught to think and talk about what he and his friends are doing, about what is happening around him, and especially to cultivate a **sense of humour.** He should develop a hobby—stamp-collecting, birds' eggs, bees. He should not think and talk about unpleasant things; there are plenty of nice things for him to think about.

Make a standard for himself and hold to it.—He must be taught to decide for himself, without being told, what is right and what is wrong. What is wrong for one may not be wrong for someone else. The important thing is to have a standard and to quietly hold to it.

Be affectionate and friendly.—A child should not be afraid to love his relatives and friends, not jealously or selfishly, but generously. We cannot get love without giving it, but giving it is even better than getting it.

These rules for mental health are to serve as guides in our behaviour towards others. Their observance means self-control. To have self-control is to possess the highest quality of man, and the one that makes for most happiness.

THE Good Neighbour

BY MARY

From Me To You

CHANGE is something that comes to every one of us—it comes to me, and it comes to you. Nothing we can say or do will prevent it, nothing we can say or do will alter it. It is as well, often, that we do not know what is ahead of us, for sometimes we would so easily lose faith in ourselves if we knew what the years had in store for us.

Nowadays, more than ever before, change is ever-present in our everyday lives. We scarcely dare to hope—and if we do, it is never with any certainty—what to-morrow has in store for us: sometimes these changes that come along, quite uninvited, are not the happiest things for us; other times, we would not believe beforehand that any change could be so much for the better.

But the important thing about change is to take it as it comes. It is no good fighting against it, however much you may wish to. If the change is not a good one, the only thing to do is to keep your chin up, as the saying goes; and on the other hand, if the change is for the better, then there is little difficulty in smiling. There is a pattern in our lives, and every turn of events has a purpose. Don't fight against events, fight with them, and you will very soon find that events are with you rather than against you.

In the lives of some people there is more change than in the lives of others. But change will always be with us, and the more often you experience a little different set of circumstances, the stronger you will become to face the next set. Life is a peculiar thing—it seems to have a way of being down on you when you are down, and up with you when you are up.

"If you do not like things, alter them," said a wise man once, "but if you cannot alter them, like them."

So it behoves us all to make the best of every change that occurs in our lives, for without change our days would be dull, and life would be monotonous instead of being a glorious adventure, each day unlike the day preceding it.

I believe Life was meant to be beautiful, and if it is not so, then it is ourselves who have stolen the beauty from the days, and it is up to us to replace it. Faith, and hope and love make life beautiful—it is the ugly things, such as selfishness, intolerance, and impatience that make it drab and uninteresting.

Do not shrink from change. Even though, to-day, it may not seem for the better, make the best of it, and to-morrow you will find that, after all, you were wrong, and everything has worked out all right. Remember that God never shuts one door but He opens another, and it is only because of change that we can ever hope to progress.

Mary

Mary's "At Home"

THERE is a little creek running through our farm, and in the spring it is just lovely. Many a walk I've had along it—there are poplars and weeping willows along either side. I have stepped across the creek in many places, but this morning I went down, and what a change! With all the rain, our peaceful creek had vanished, and in places it was easily a chain wide, all dirty, swift travelling water. However, we are up on a good rise, and there is not much chance of us getting flooded. When I was small, we used to live at Balclutha, and we lived in a continual dread of floods when the river was high.—**Mrs. M. Hamilton, Oamaru.**

MAY I draw into the friendly circle of your "At Home" and tell you an incident from over the other side?

"Oh, we're tough, mighty tough in the West, and I think some of my ancestors must have come from the West," writes a lady from Swansea, "because it surprises ourselves what we can stand up to." Two years ago this lady paid a visit to one of her sons in New Zealand. Now she is back in Wales. Though nearer 70 than 60, she is caring for two young grandsons while their widowed mother goes to work, and she is also a warden for putting out incendiary bombs in their street. Quite casually she writes: "I

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OLIVIA DE HAVILLAND who appears for Warner Bros., in "Wings of the Navy"

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Good Dressmakers and Designers are wanted by big stores—factories—select salons—and besides, there are other opportunities for the woman who wishes to have a business of her own, or merely to make and design dresses for her friends and herself in her spare time. There is positively no chance of failure with this wonderful new Dressmaking System, because it has been designed by an expert Dressmaker and Designer of many years standing.

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had to wait until I got my tin hat before I began my warden duties, for there is so much flying shrapnel about." She goes on to describe the wonderful beauty of the snow-clad city lit by the flares of torches and incendiary bombs. "If it was not for the roar of the guns and the flying splinters, one would think one was looking at a marvellous fireworks display."

What an inspiration there is in the thought of that gallant little white-haired figure battling about in that inferno. Some of her indomitable spirit must have been bequeathed to her sons, for one of them has his captain's certificate in the merchant service, and the youngest, aged only 24, is a British Army captain who came back safely from Dunkirk. — **Kowhai, Mangatainoka.**

THERE is a lot to be said for the folk who plan their work for the day, and get through it, come what may. They do accomplish a lot, and I am always making resolutions to do the same, but on our farm at least there is always the unexpected happening to take my attention from a set programme. We have 35 of the cutest little pigs, which are always turning up where they "shouldn't oughter." The other day I saw that about a dozen of them had squeezed under the wire-netting, and were eating away at our precious oat-stack, intent on making tunnels through it. There was such a hullabaloo when I descended on them with ferocious wuff-wuffs. In the emergency they had forgotten where they got in, and round and round they went, and it was quite a time before the last one managed to wriggle out through an incredibly small space.—**Mrs. Carlow, Timaru.**

I'M about to step off the solid ground of everyday routine on to the sea of holiday adventure! For hills and harbour, I'll exchange flat fields and wide sunset skies—for the rattle and clang of the city, the quiet of a country village. And for the space of three weeks or so I expect it will be a good exchange. I'm counting on other treasures, too—sleep, and bookshelves to explore, music, and maybe fresh adventures in friendship.—**Young Tyke, Wellington.**

ONE day I was extra busy, and could not watch the baby for too long. He was ten months old, and could crawl round anywhere. I was busy in the dining room, when I missed him, and as everything was very quiet I began to wonder if he had crawled outside. I went out to the kitchen, and there he was. He had managed to lift the top from a 60lb tin of honey, and he had his arm up to the elbow in honey! Well, he had honey all over him, and all I could do was put him in the bath.—**Poroti, Whangarei.**

HERE is how I first became introduced to you, Mary. "Are you awake?" came a voice at 10 o'clock at night. "Here's the mail, and a letter for you." So, sitting up in bed, I received an introduction to you who signs in such a friendly way the word "Mary." How interesting it makes the "Journal" to have your section to turn to, because after all one sees a lot of the agriculture side in the country all day.—**M., Feilding.**

I NOW have a week-day daughter—Miss Nearly Six, who is the daughter of friends who live several miles from school, and not on one of the roads catered for by school buses. As my home is only half a mile from the school, I offered to care for her from Monday afternoons until Friday morning, when I send her off to school. This is the second term I've had her, and her parents are most grateful—and she is, as I have written, just my week-day daughter.—**Crossroads, Apiti.**

I WOULD like to say how much I like your pages in the "Journal." They are a big improvement from the woman's point of view, and we look forward to each new "Journal." Have tried several of your recipes, and have found them very nice and useful; they are homely ones that a busy farmwife has time to try. We have a young man in our house, aged 16 months, to take up our time and interests. These young people are very amusing; what they do and try to say. This little man has been walking for some time, so gets into plenty of mischief; found an oil-can one day, so sets about oiling the lawn-mower in such a business-like way—did someone say he is going to be a mechanic?—**Blue Bell, Temuka.**

JUST now life is doing a whirl for me. I enlisted for transport work with the W.A.A.F., and last Friday had to appear before the selection committee. The result was that I have to take a heavy traffic test next Wednesday, with the hopes of having my driving licence endorsed for heavy traffic. As a result of that I spent three hours yesterday driving a local six-wheeler over some of the roughest country imaginable. I've done some tricks with the car, but what I had to do yesterday was double worse, and I had a strange steering wheel. However, now I've no fears for Wednesday! At least I'll have a decent road to play tricks on.—**John-in-the-Middle, Rangiora.**

AT the Centenary celebrations at Moturoa last Monday there was a tremendous crowd. The landing of the first pioneers was re-enacted. The spectacle was very interesting, but I couldn't help thinking of what the pioneers really had to put up with. What courageous men and women they must have been. I wonder how many of their descendants would brave the perils that those wonderful people braved. We certainly are not nearly as self-reliant as they had to be.—**Mary Ann, Bell Block.**

I WAS telling my family that I'd read in the paper recently that carrots are good for the eyes, so that they should eat plenty of them. "Oh," said the youngest and wag of the family, "if they are good for the eyes, mother, why not hang a bunch on the wall where we can see them any time?"—**Daisy, Hastings.**

RECENTLY I read Noel Coward's autobiography, so I was glad you had met him. People are interesting, aren't they, even those who are not famous? All the women living near my home belong to the Women's Division, and it helps us to pull together. I have marvellous neighbours, always doing things to help me along.—**"F.," Oxford.**

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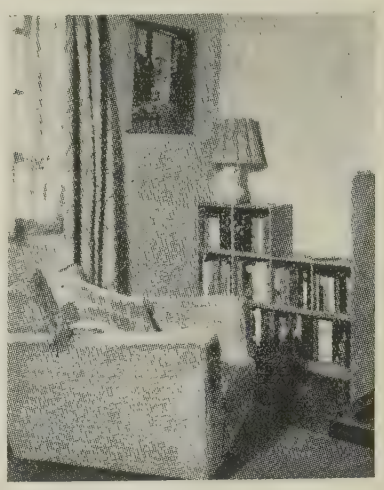
YOUR GREATEST FRIENDS —YOUR BOOKS

YES, they are your greatest friends. Once you have met and known a book, it will always be true to you. Once you have loved a book, it is always waiting for you to go back to it, waiting to share its joys with you again. So, be very careful how you treat your book friends, for if they are going to be faithful to you down the years, you must be faithful to them.

Whereabouts do you keep your books? I do hope you have plenty of proper shelves for them, and do not have to keep some of them packed away for long periods at a time. Nothing will destroy the beauty of a book quicker than being packed away in a box, for besides the harm that dampness may cause, you will forget you owned it once, and will be done out of the joy of re-reading it now and then.

Your book shelves should be in some place where the sun does not penetrate, and not too near an open fire. Classify them as much as you can: fiction, poetry, study, travel. It is a great help to know just where you can put your finger on a certain book when you want it. Every now and then devote a little time to looking after your books. Take them all out, and shake them gently to rid them of dust; if they are leather-bound, some of them may appreciate a gentle polishing with a colourless shoe-cream; if the bindings are at all torn, mend them with adhesive tape, and paint it over to match the colour of the book.

Be careful, too, when you are reading a book. Never turn down the corners to mark your place. A friend of mine once said to me that if you could not remember where you left off in the book, then the book was not worth reading. But nevertheless a book mark is often a great help! Do not leave



the book in the sunshine, or read it too close to a hot fire, and do be as careful of other people's books as you are of your own. So often books are carelessly treated because they are borrowed, or are library books. And do be prompt about returning borrowed books. You never know when the owner may want to read it again, or possibly lend it to another friend.

I think all that I want to say to you about books is summed up in this verse by Margaret Lloyd, and which I found written on the flyleaf of a book which was lent to me.

"Books should never be dusted
By those who do not love them.
Books should never be borrowed
By those who cannot return them.
Books should never be lent
Unless the owner's name is clearly written inside,
And the owner is pretty sure
Of getting them back in good condition.
But—
Books should be borrowed, and loved, and dusted, and lent, and lived in.
And read inside out, and back again,
And loved, and shared with one's friends,
And counted among them, all the same."

While the Log Burns

"The Art of Living."

—by Andre Maurois.

IT is a curious fact that, although the greatest problem in the world is living, yet we rarely acknowledge its existence and importance, and yet more rarely ever read books on this so vital subject. To live well—that is to live fully, and happily—must surely be the most important question that we as human beings ever have to face, but the number of good books written on and about this tremendous topic is woefully small. Andre Maurois, however, has added one more book to this list with his delightful volume "The Art of Living."

M. Maurois has a long list of books to his credit, books such as "Ariel," which is a study of the life of the poet Shelley, and "Whatever Gods May Be." Now he writes on Life itself, which, as he says, must be the same in England as it is in France. There are nine chapters in this book, on the nine arts of life. Perhaps you would like to know what this writer considers the nine arts of life? Well, here they are, in the order in which he has talked on them in his book: Loving, marriage, family life, friendship, thinking, working, leadership, growing old, happiness. These nine chapters are nine talks by a very companionable gentleman, who never tries to preach, but just talks gently about the problems of man and woman, of living and loving, making friends, and growing old; problems that are as old as man himself, but which will exist as long as thinking beings exist in this world.

This is no novel, no light fiction, but you will find it full of many deep truths which, especially when applied to yourself, will set you thinking on an entirely new line of thought, and which will perhaps influence your actions, too. In the first chapter M. Maurois defines art as Nature worked up and improved. Many people think of life as pure Nature, but here, as in other things, Nature provides us only with the rough materials, and leaves us to build our loves and our lives into shining towers, pinnacled with glory.

To live well is a difficult task, but with effort and sacrifice we can each make our lives a work of art. A more companionable book than M. Maurois's "The Art of Living" I have not read for many a day, and I am sure you will agree, after reading this book—which is a recent publication and has been translated from the French by James Whitall—that an art well worth our finest efforts is the art of living.

The soul would have no rainbow, had the eyes no tears.

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Our Competition

What Do You Do To Take The Humdrum Out Of Your Days?

I HOPE no one ever writes to me and tells me their life is humdrum—for I simply wouldn't believe it! There were so many entries for this competition, so many cures for this humdrum that sometimes creeps into our days, that amongst them all you must find one that will chase boredom from your days. Yet it was remarkable that so many of you agreed on one point—get out in the garden, dig your soil, grow your flowers. Yes, it is a good cure!

Well, here are the winners, and I have tried to print as many different cures as possible, so if your entry isn't here this time, perhaps you will be lucky next time.

First prize goes to "Mary Marie," Halcombe; second prize to "Biddi-Jan," Redcliffs; and highly commended "F," Oxford, and "Nes," Meeanee.

Bored? Well, read these cures:—

First Prize.

WHENEVER I feel particularly bored with the house, the first thing I do is to turn out the vases and do the flowers again, if possible in different colours. I think most farm women find in the garden an escape from the trammels of the kitchen's four walls, and I dash out for a few minutes whenever I can. Kipling's cure for the "hump"—"to take a large hoe"—has not been over-rated, for there is a joyful magic in creating a garden that lifts one far above troubles, real or imaginary.

There are so many interesting things to do in a home of our own that I am never bored unless I am not well, and the days go by with nothing done but the uninteresting necessities. Then I feel really lonely, missing the variety of crowds and shops. Something must be done about it, as we countrywomen cannot indulge in the usual tonic, namely, go out and buy a new hat. So I try to break the monotony by doing the chores in a different order, then rearrange some things as I replace them in the cupboard, and place moveable pieces of furniture in different positions. Sometimes I move the curtains to other rooms if it can be done without spoiling colour schemes.

Another helpful idea is to have a room arranged with a neutral background, but with accessories interchangeable, such as cushions with each side a different colour. A room with cream or pale green walls looks well with autumn coloured cushions, and humpty with brown and yellow figured cover. Turn over the cushions to show various shades of purple, mauve, and green, slip a loose cover of dark green over the humpty, put the brass candlesticks in the cupboard, and bring out a piece of pottery, and in just a few minutes there is a refreshing change.

Sometimes one can prepare an easy tea, and give the children an extra hour of reading or playing games. Do they appreciate it? Just try it. Here's to many happy times.—**Mary Marie (Halcombe).**

Second Prize.

UNTIL two months ago I was a maternity nurse in a small, select private maternity home, and I met many patients who suffered from boredom. My advice was always the same—WORK, with capital letters. I do not mean to stick to one thing, but find out what suits one, and then get on with the job, be it housework, gardening, painting, knitting, or the hundred and one things that one can do, whether rich or poor. My experience has been that the poor woman has so much to do that she does not have time to get bored.

Personally, I never have been bored, as I always seem to have something to do—in fact, I want a 48-hour day to cope with all I wish to do. However, if the day ever comes when I do get bored, I shall go for a long walk, walk until I am ready to drop. I am sure that by the time I had walked a mile I would have found so much to interest me that the rest of the walk would be sheer delight. One does not need to live in the country to see things on a walk—any city street is a play all on it's own if you keep your eyes open. So, you people who get bored, next time, grab your walking shoes, leave your husband in peace with his paper, and step out.—**Biddi-Jan (Redcliffs).**

OUTSIDER

I cannot share your grief, O mother
Of the man who goes to war;
Dry-eyed and brave, you smile farewell
To the one whom you adore.
I cannot share your grief, my friend,
And yet . . . . I love him too.
Last night, when moonlit blossoms slept,
We walked in dappled dew,
'Neath starlit skies we loved awhile,
Your soldier son, and I . . . .
And yet—it is your boy who goes
So bravely forth to die.
I cannot share your grief, O mother
Of the man we both adore,
For he is yet your baby son,
Though the man has marched to war.

Highly Commended.

A PITY it is to be a sufferer from this ailment. Prevention is better than cure so they say, so if you are not yet a sufferer, fill your days with things to do, and boredom won't be able to creep in.

But sometimes the monotony of things is all-pervading—bones ache for a rest, tired feet just nag. Half an hour's rest on the old couch doing and thinking nothing cures that. And sometimes dishes and floors and beds seem endless. Then sing—never mind the tune—concentrate on the words of all the old songs you used to know, and the cure will begin. If you have the courage, go into the piano for five minutes, and you will come back to the broom a new woman.

The next time there is half an opportunity, seize it, and go out for the afternoon. Listen sympathetically to other women's troubles, and silently compare them with your own, and perhaps you will find contentment that way. But never permit boredom to be your companion for "the world is so full of a number of things, I am sure we should all be as happy as kings."—**F. (Oxford).**

I AM a New Zealand land girl, and, believe me, many of my days are "humdrum." Rising at 4 a.m., milking 70 cows, and then going to the hayfield for five hours, to return again to the cows, is often more than enough. Here's how I overcome the humdrum. My voice isn't one of the best by any means, but the cows don't mind, and my two brothers say they can just bear it. So I sing. You would really be surprised if you tried singing when you feel you have had enough of work.

I never notice the length of time we take to finish at night, and I always feel better tempered, and less tired. Do try it!—**Nes (Meanee).**

EVERY woman is all the better for an interest that lifts her right out of the usual round, and for that I think we can point with pride to the various Women's Institutes and branches of the Women's Divisions of the Farmers' Union that now exist in almost every centre of New Zealand. These organisations have done much for the country woman, not only in providing interest and pleasure, but also in many other ways. They provide a common meeting ground for all women, irrespective of creed, colour, or personal possessions, and how much they teach! Women learn to conduct a meeting, to think on various subjects, and to express their thoughts clearly and concisely; they learn to "give and take," to understand another's veiwpoint, to be loyal to their officers and organisation; they learn to play the game, and if we could instil that lesson into the hearts and minds of the peoples of the world, how much misery we could avoid. My cure for boredom then is to join up with some organisation, and you will find it of benefit to yourself, and to everyone with whom you come in contact.—**Silver Birch (Otago).**

PERSONALLY, I get great fun out of "spending" the first prize in the art union, if I happen to have a ticket in the current one. Although we do not always have a ticket, we have one often enough to give me many exciting hours through the year.—**Plain Jane (Taupiri).**

THE best tonic for boredom in normal times is a visit to the milliners, for there is no doubt that a new frock or a gay autumn hat does have a pyschological effect, not only on the wearer, but on those who look at her as well. So go to your store to see the gay company of autumn hats that have arrived. Hats with crowns the size of a coffee cup, and brims in the corresponding saucer shape, beset with birds and flowers, airy twists of tulle, and all manner of cunning devices, are bound to put even the most depressed wearer into a cheerful mood.—**"E.N." (Foxton).**

BOREDOM.

Boredom is a dreadful thing.
For when it comes it seems to cling
Till all your world seems black and glum
And only others have the fun.
Day after day I'm left alone
For all my six dear chicks have flown,
But I work outside as well as in:
My garden is a lovely thing.
Then, too, the mail comes round each day,
And in the box a mile away
I often find a letter long
That fills my heart with joyous song.
There's Mary with her children two,
And all the naughty things they do;
Joan, from afar, in Air Force blue,
Writes reams about the work they do,
While her brother tells of work and fun
Of the soldier's life that he's begun;
And my Baby—who claims to a modest eighteen,
Sends news of her doings, you'd think her a queen!
And that's how I keep old boredom away,
For no one must know I am lonely —today.

—Grannie (Amuri).

WHAT IS YOUR REPLY?

WE ALL know what a grand feeling it is to come home, whether we have been away only for a day, a week, or a year. There is something about OUR house that makes it different from all others. What is it?

"WHAT IS IT THAT MAKES A HOUSE A HOME?"

You may be twenty-one, just married, with a brand new house of your own; you may be forty, with a house that has been yours for years, but whoever you are, wherever you are, you all know there is something that makes a house into a home for you.

Send me your ideas, before June 15, 1941, and you may win one of the two prizes: First 10/-, and second 5/-.

"Mary"

C/o. "Journal of Agriculture," P.O. Box 3004, Wellington.
¶Closing Date: June 15, 1941.

Helpful Hannah Says . . .

If you stand on a cushion while ironing, your feet will thank you.

* * *

Wrap your cheese in a cloth which has been dipped into a solution of vinegar and water. Wrap a dry cloth round the damp one and your cheese will stay very much fresher than if wrapped in greaseproof paper.

Black wool with Persian lamb trim is the motif of this suit worn by Ann Rutherford, of Metro-Goldwyn-Mayer. Cut on very straight lines, the suit is two-piece. A wide girdle of red crepe trims the plain basic dress. Peter Can collar and buttons in the fur are good details in the double-breasted jacket, which zips up the front to a high neckline.

When you are washing your cretonne covers, add a crushed aspirin to the water. This brightens the colours, and prevents them from running.

* * *

Apply your floor polish with a crumpled newspaper, and then keep your papers for lighting the fire.

* * *

Keep a stiff wire brush, such as is used for cleaning suede shoes, with your electric cleaner. This will be found invaluable in removing the fluff that collects on the brush appliance.

* * *

If you have to prepare your fruit salad a little ahead of meal-time, you can prevent the fruit from becoming discoloured by sprinkling with lemon juice. This adds to the flavour too.

* * *

Have your tea-towels gone fluffy with age? They do so often, and like many other things nowadays, one has to use tea-towels to the very end of their life. Try dipping them in a little starch water, and the fluff won't come off on your glasses and crockery.

The Finish On Your Furniture

IT'S there when you buy it, that finish on your furniture, but can you say the same when you have had your furniture for, say, five years? Time and people have not been too kind to your dining-room table, and instead of having a high polish, it is dull, and perhaps ornamented with circles where hot plates have been put in careless moments. It's not too late to bring out the high lights of polish again, but before you begin you must make a resolution to be patient, and to do your polishing regularly.

In a romantic mood is Columbia's leading lady, Loretta Young, when she appears in this glamorous frock. Billowy white tulle makes the bouffant skirt, banded with horse-hair lace at the hemline. The strapless decolletage is embroidered with silver paillettes, which trail in a slender design to the lower edge of the skirt. A romantic touch is the tulle scarf which she winds round her shoulders.

A good wax polish is always popular, but have you tried a good furniture oil in its place? Most wooden furniture is given a hard-surfaced finish with varnish or shellac, and as the surface of the varnish dries, it becomes less elastic, thus causing it to crack in very fine lines. If you regularly use an oil polish, you will feed the varnish, and thus prevent the breaking of the finish.

To remove those hot-plate marks, try cigarette ash on a damp cloth. It will work wonders. Scratches can be made a lot less noticeable if you treat them first with wood stain of the proper colour, and finish with wax or oil polish. You may find that oil alone is sufficient if the wood is light coloured, but if it is dark, try touching up the scratch with iodine, before polishing.

If you do use a wax polish, remember to apply it very sparingly. If you damp your cloth you will find that it helps to keep the coating thin. After applying the polish leave it for a few minutes before rubbing it with a fresh cloth. If you prefer to use furniture oil, be sparing with it, too, and don't forget that an oil will clean as well as polish, so after applying the oil, rub it well with a cloth, and then finish with a third and clean cloth.

A good polish is always the source of admiration, and nothing is as beautiful as the reflection of flowers in the high polish of a dark coloured table. So remember, when you are polishing, that there are two secrets of success—firstly, you must always use clean cloths, and, secondly, you must not be sparing with your elbow grease.

"... Only Skin Deep"

Beauty From Your Pantry

HAS it ever occurred to you how much beauty there is to be found in your pantry? No, I don't mean the beauty that you see, like rows of bottled fruits, or jars of tempting chutneys. I mean the things that come from your pantry, and which help YOU to become beautiful.

What about an egg pack for your face? Beat 2 oz. of fresh yeast to a paste with the stiffly beaten white of an egg. Apply this to your face, and leave on for quarter of an hour. Your face will feel tight, and you will look like a ghost for that fifteen minutes, but you will feel a hundred per cent. better when it is off. Oatmeal, too, is good for the skin. Fill small muslin bags with fine oatmeal, and use them, dipped in warm water, for washing your face. This is especially beneficial if you suffer from acne.

There are ever so many aids to hair beauty in your pantry. Break an egg into your shampoo powder, and beat them together well. This makes a splendid hair tonic. Don't forget that hot olive oil applied before you wash your hair will drive away dandruff, and that lemon juice added to the last rinsing water will bring out all the golden lights in your hair. But perhaps your hair is grey, or white? Well, treat it like you treat your washing—to a little blue in the last rinsing water. Asked out unexpectedly, and your head greasy, with no time to wash it? Well, dust it lightly with a little powdered starch, then brush it all out briskly. Result: a head of hair, all clean and shining.

Barley water is a tonic in itself, but if you add some lemon juice to it, and take it regularly, you will find your skin will benefit. Try taking a mixture of sulphur and honey, too, if you want to clear your skin. It is not very appetising to take, but it does the trick.

Your feet will appreciate a soak in a solution of warm water and washing-soda if they are tired; and if you have been doing a lot of walking, rub the feet with methylated spirits after the soaking is over.

Ever used a friction towel? This is a boon if you suffer with that very irritable complaint—an itchy back. Make a solution of warm water and 1 lb. of salt. Soak an ordinary bath towel in this, and when the towel is dry, rub it gently to soften it. Now give your back a good rub after your daily bath with your friction towel, and itchiness will disappear. Your towel will be good for quite half a dozen uses after each soaking.

If your lips become dry or chapped—and they may be doing this quite soon with winter on the way—massage a little cream from the top of the milk into them.

And don't forget, never throw away your lemon peels. Keep them handy above your sink, and rub them into your hands after you have finished the washing-up.

Well, we seem to have found something in the pantry for almost every part of ourselves that requires attention. The way to beauty, after all, is not as expensive as you imagined it to be—help yourself to your pantry, and keep at it regularly, and, believe me, you will be surprised at yourself in a month's time!

What is happiness? It is the air we breathe without knowing it; the dappling of sunlight in the depth of a wood which is so quiet and still that we go by without noticing it. It is ourselves when we forget ourselves.

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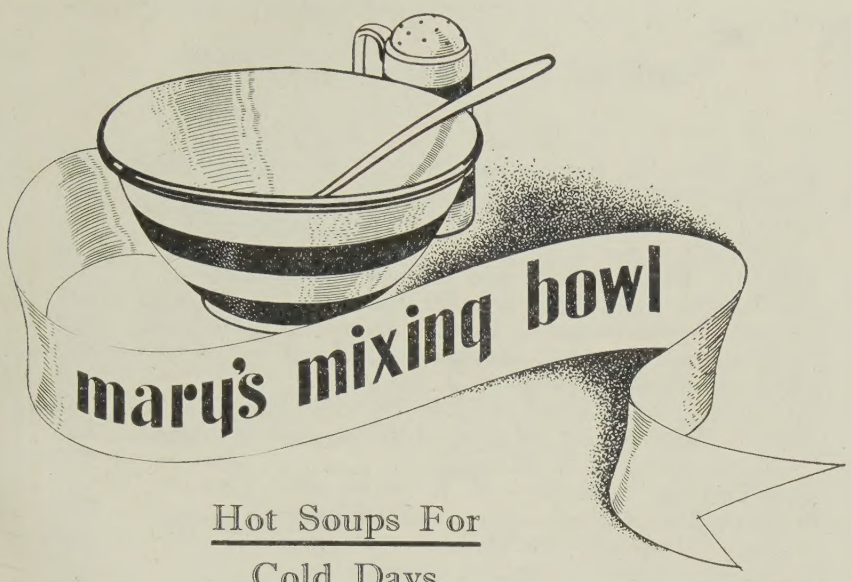

Hot Soups For Cold Days

LENTIL SOUP.

Stock or water, 1 pint; lentils, 1 teacup; onion, 1 small; carrot, 1; celery, 1 stick; mint, a pinch; salt and pepper, a little; butter, ½ teaspoon; milk, a little; flour, 1 tablespoon.

Wash lentils, put them in a saucepan with sliced mint, stock, and seasoning. Cook gently till soft. Pass through a sieve and return to the saucepan. Mix flour to a smooth paste with milk. Add to soup. Stir until boiling. Add butter and serve.—**Miss Therese Deegan, New Plymouth.**

MY FAVOURITE SOUP.

1 boiling fowl, 1 of each carrot, onion, apple, all peeled and diced.

Put all into pot with cold water to cover fowl. Salt and pepper to taste. When the water boils add the following:—1 of each 1 tablespoon rice, barley, and sago. Simmer several hours. Add 1 teaspoon parsley before serving. —**Mrs. R. A. Bruce, Geraldine R.D.**

ARTICHOKE SOUP.

Put a knob of butter into saucepan, add 2 onions cut finely; simmer a few minutes, add 3 cups stock, about 6 artichokes cut finely. Cook half an hour. Put contents through a sieve, add 1 jug milk. When it boils thicken with about one-third cup cornflour, season to taste.—**M.G., Lumsden.**

DUCHESS SOUP.

1 quart milk, scalded, 1 teaspoon salt, ¼ cup grated cheese, 2 tablespoons finely-chopped parsley, 2 tablespoons butter, ⅛ teaspoon pepper, 1 tablespoon onion grated, 2 tablespoons tapioca.

Method.—Add tapioca, salt, pepper, and onion to hot milk; cook in double boiler, if possible, for 15 minutes, stirring frequently. When tapioca is clear, add butter, cheese, and parsley. Cook until cheese is melted. Serve with croutons of fried bread or toast.—**Mrs. W. R. Powell, Halcombe R.D.**

MY FAVOURITE SOUP

The prize of 2/6 for the best soup recipe is awarded to Mrs. J. Ferguson, 20 Torrance St., Epsom, Auckland, for the following recipe:—

SCOTCH BROTH.

3lb. neck of mutton, 2 tablespoons pearl barley, 1 stick celery, 3 quarts of water, 1 carrot, 1 turnip, 1 onion, chopped parsley.

Cut up mutton removing fat. Put it into a saucepan with any other meat bones available and cover with water. Bring to boil and simmer for two hours or more. Add pearl barley and vegetables cut into dice. Cook until barley, vegetables and meat are cooked. Season with pepper and salt, add parsley.

OYSTER SOUP.

Quantity for 4 persons.—Pottle of 1 dozen oysters. Remove beards from oysters. Add about a pint of water to beards and oyster liquid and 1 onion; boil for 20 minutes. Make thick white sauce, add oysters, and then the strained liquor from beards and season to taste. Simmer for 7 minutes; must not boil, as it toughens oysters.—**Bluebell, Waitohi.**

STEWS ARE IN STYLE

Yes, stews are in style the whole year round, but never more so than in the middle of winter. Stews—they are nourishing, appetising, moreish.

Send your favourite recipe for stew to the "Mixing Bowl." A prize of 2/6 will be paid for the best recipe received by June 15.

IMITATION HARE SOUP.

1 lb. gravy beef, 1 onion, 1 carrot, 1 turnip, 1 oz. dripping, 1 oz. flour, 1 quart stock, 4 pepper corns, 2 teaspoonfuls Worcester sauce.

Melt dripping and fry onion. Cut meat very small and remove fat. Fry meat in fat and then brown flour in the pan. Cut up vegetables, add cold liquid and put everything in saucepan. Simmer for 1½ hours.—**Plain Jane, Taupiri.**

BARLEY BROTH.

Take two shanks of mutton, put into pot with three pints water and a small cup of well-washed barley. Cut up 2 onions and 2 turnips, grate 2 carrots, and boil for 4 hours. Add salt and pepper, and skim well before serving. Two tablespoonfuls of chopped parsley put into the tureen improves it. Add more water if necessary.—**Mrs. G. Walker, Hawera.**

WATERCRESS SOUP.

1 lb. potatoes, 2 onions, ½ cup milk, 1 quart water, vegetable salt, 1 bunch watercress.

Cut up potatoes and onions, cook till soft. Mash, heat well, then add hot milk and watercress, finely chopped or put through very fine mincer retaining all the juice. Bring to boil, add salt and serve.—**Devonshire, Clinton.**

CREAMED TOMATO SOUP.

About 1 lb. tomatoes, 2 tablespoons flour, 1 pint milk, 1 small onion, 2 tablespoons butter.

Cut up tomatoes and onions and cook for half an hour. Rub through a sieve and return to pan, seasoning with salt, pepper, and a teaspoon of sugar. Stir in gradually 2 tablespoons of butter rubbed into a tablespoon of flour and simmer about 3 minutes. Add a pinch of soda to a pint of milk in another saucepan and boil. Pour both together into the tureen and serve at once. By bottling plenty of tomato pulp this soup can be had all winter.—**Mrs. J. I. Joines, Timaru.**

BANANA CHUTNEY.

3 lb. apples, 3 lb. bananas, 1 lb. raisins, 2 lb. brown sugar, 1 oz. salt, 2 oz. garlic, 1 dessertspoonful curry

powder, 1 oz. mixed spices, 1 teaspoon red pepper.

Mince the apples, raisins, and garlic, add the other ingredients, and boil in 2 quarts of vinegar for three hours.

APPLE STUFFING.

5 or 6 apples, a little water, 1 oz. butter, grating of nutmeg, 1 lb. breadcrumbs, 2 tablespoons sugar, 1 egg.

Peel and quarter the apples, put them into a lined or earthenware saucepan with the butter, and enough water to moisten the bottom of the saucepan. Cook slowly until the apples are tender, but not broken. Add the sugar and nutmeg, allow the fruit to cool, then stir in the breadcrumbs and the egg well beaten. This stuffing is used principally for pork or goose.

CURRIED RICE.

1 cup rice, boiling salted water, 2 tablespoons butter, 1 tablespoonful sultanas, 1 onion, 1 tablespoon chutney, 1 tablespoon curry powder, salt, cayenne, hot buttered toast, chopped parsley.

Wash rice thoroughly, drain and place in boiling salted water with a slice of lemon. Boil quickly until the rice is tender, and drain through a colander. Peel, dice and fry the onion in hot butter until tender without browning it; then add cleaned sultanas, curry-powder, and chutney. Simmer for a few minutes, then add the prepared rice, mix and heat thoroughly. Season with salt and cayenne, pile rice on finger-lengths of toast, sprinkle with chopped parsley, and serve piping hot.

VEAL AND HAM PIE.

1½ lb. veal, ½ lb. cooked ham, 2 hard boiled eggs, ½ pint stock or gravy seasoning, puff pastry.

Cut the veal into small pieces, and cover each piece with ham. Pack tightly into piedish, and season with salt, pepper, and a little tomato sauce if desired. Slice the hard-boiled eggs on top of meat, and pour stock over. Cover with puff pastry, and bake for 1½ hours in a fairly hot oven.

ICED NUT CAKE.

¼ lb. butter, ¼ lb. sugar, creamed well.

Break in 1 egg, a pinch of salt, add ½ lb. flour and 1 teaspoon baking powder. Roll out and divide. Put on slide and spread with thick raspberry jam, and put other piece on top. Bake in moderate oven. When cold, ice with pink icing, and cover with chopped nuts. This mixture is hard to handle when rolled out, so roll the lower half out on the greaseproof paper which it is cooked on, and put the top half on by cutting it in strips.

BENGAL BISCUITS.

3 oz. flour, 2 oz. butter, 1 egg yolk, ¼ teaspoon mustard, ½ teaspoon baking powder, 3 oz. grated cheese, ½ teaspoon curry powder, 1 tablespoon milk.

Mix flour and curry powder, mustard, baking powder and cheese. Rub in the butter finely, add salt and pepper. Mix egg yolk with milk, pour into the mixture, and make into a stiff paste. Roll out thinly, cut into rounds, and cook in a slow oven. Delicious with butter.

MARSHMALLOW FILLING.

1 breakfast cup water, ½ lb. sugar, ½ oz. gelatine, ½ teaspoon vanilla.

Dissolve the gelatine in half of the water for 10 minutes. Add the rest of the water, heat until quite dissolved, then add sugar and boil very gently for half an hour. Add essence and pour into a basin to cool. Beat to a stiff froth, and spread on cake. An ideal filling for sponges.

FIGIT PIE.

Peel, core and slice one pound of apples, and ½ lb. of onions. Take a ¼ lb. piece of bacon, cut into small dice, add a little pepper and salt, one teaspoonful of golden syrup with 2 tablespoonfuls of water. Put in a piedish, and cover with pastry. Bake three-quarters of an hour in a moderate oven.

CHEESE CUTLETS.

Put into a bowl 2 teaspoonfuls of mashed potatoes, breadcrumbs, small quantity of grated cheese, two teaspoonfuls of mixed mustard, pepper and salt to taste. Mix all together, and form into cutlets. If the mixture is inclined to be dry, add a little milk. Dust over with flour, and fry in fat.

SATURDAY PUDDING.

1 teacupful flour, 1 tablespoon marmalade, ½ teaspoonful bicarbonate of soda, 2 tablespoons golden syrup, 2 oz. butter, 1 egg, 2 tablespoons milk.

Rub the butter into the flour, add syrup, marmalade, and egg, beat all well together, lastly adding the bicarbonate of soda dissolved in the milk. Steam for 2½ hours in a well-greased basin.

SHORTBREAD.

6 oz. flour, ¼ lb. butter, 2 oz. ground rice, 2½ oz. castor sugar.

Mix the sugar, and ground rice, and knead them into butter, sift the flour, knead them all together, flatten out with the hand (do not use a rolling pin), and bake in a cool oven till slightly browned.

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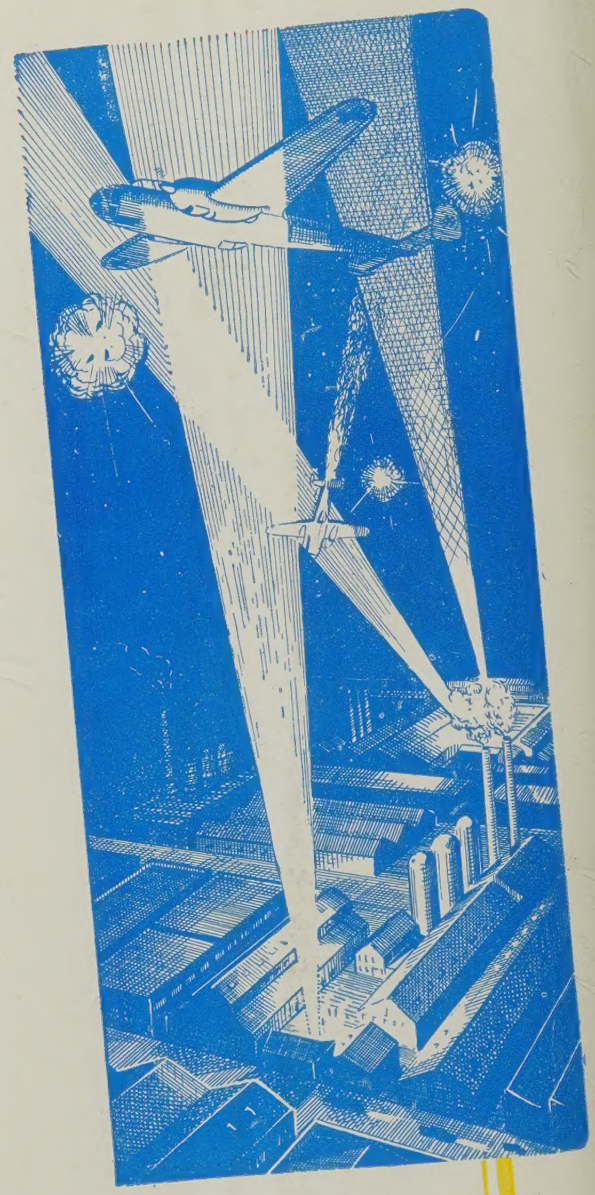

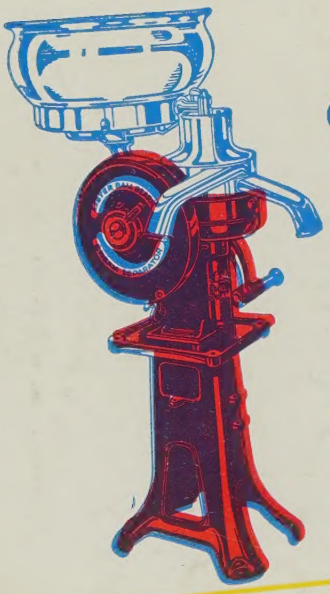

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